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ABSTRACT

The comprehensive planning approach allows individuals in a school district to take part in evaluating and recommending changes in school programs. This book is designed to explicate planning concepts and processes and to assist in the implementation of the planning process. The manual contains three sections: (1) Basic Skills and Concepts, which provides participating teachers and administrators with individual and group activities that teach basic skills and concepts essential to the successful construction of performance indicators in a subject area; (2) Beginning Implementation, which covers the implementation of performance indicators, from their development to an explanation of scoring and summarizing the resulting data; and (3) Project's Guide, which provides guidelines and information on the development and implementation of the planning project. (Author/MLF)

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handbook of comprehensive planning in schools

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OVERVIEW

The need for planning in education is not a highly disputed point. Wasteful imbalances within the educational system must be reduced. The pressures caused by costs rising faster than revenues require that available resources be allocated more judiciously and effectively. While the costs increase, so do demands for more education and more alternatives in education. The complexity of our times has forced every segment of society to develop better methods to collect information to be used in decision-making. The future is approaching at a greatly accelerated rate, and we cannot use yesterday's estimates to make decisions for the future.

The U.S. Office of Education, recognizing the need for local school district planning, delineated this need in their Renewal Center strategy. The need for planning is apparent. The difficulty lies in the lack of feasible planning systems available for school districts to use.

Although some basic concepts and processes are common to all planning systems, education has many concerns that are unique to the field and which render planning systems developed for other kinds of institutions inadequate or inappropriate. The implementation of a planning system in education is subject to various restrictions and limitations. For instance, education involves an ongoing operation, including a regulated flow of students, which should not be disturbed while any new procedures—even planning—are being implemented. Thus, an incremental approach to implementing an educational planning process is required.

The comprehensive planning approach suggested in this book was conceived and developed under the direction of Sanford Temkin and Michael D. Marvin, in the Administering for Change Program at Research for Better Schools, Inc. As used here, the term "comprehensive planning" means an approach to improving the educational system which allows the individuals within a school district to take part in evaluating and recommending changes for their own programs. The planning process which enables them to do this is based upon the identification of specific needs and objectives at the school district level and is flexible enough to give everyone involved—administrators, teachers, and curriculum specialists—an opportunity to contribute to district improvement by determining what the district is currently doing, how well it is doing it, and how its efforts can be improved.

This book was prepared to introduce the reader to the concept of comprehensive planning and to develop an awareness of what is required to implement such an approach. By implementing the planning process described here, you will learn to apply the principles of comprehensive planning in your own district, focusing upon curriculum improvement through the use of data obtained by administering indicators of pupil performance. The implementation of this planning approach will provide school district personnel with the knowledge and skills necessary to revise and improve existing curriculum programs. These skills can be applied in planning efforts at any grade level or in any subject area.

The format of this book makes it suitable for *both* individual and group use. The book is designed not only to explicate planning concepts and processes, but also to actually assist in the implementation of the planning process. The exercises have been included throughout the book with the latter purpose in mind. Thus, the book not only explains "what" the planning process entails, but provides the "how" of initiating this process. No specially trained individuals are required to assist or direct the reader.

It should be noted that after initial testing of the concepts and procedures related to this planning process, all materials were refined and pilot tested in several school districts in three states (Delaware, New Jersey, and Pennsylvania). Although most of the data collected from these tests were formative in nature, the following conclusions were drawn:

1. The materials are self-instructional, requiring no external assistance for successful implementation of this planning process.
2. Group cohesiveness is a consistent by-product of involvement in this planning effort.
3. Participants become better able to organize curriculum content and to communicate ideas to each other.
4. Extended use of this approach has led to the recognition of areas of concern and to the modification of curricular programs at the classroom, building, and district levels.

The process described in this book emphasizes two major tasks: (1) specifying planning objectives, and (2) ascertaining to what extent current programs contribute to the attainment of those objectives. In implementing the planning process described, school districts can obtain this information by assessing the performance of their schools in the accomplishment of goals they have established and by measuring their level of success with indicators of performance developed by members of their district staffs. Such information provides a sound foundation for recommending and planning curricular improvements to enhance the quality of the entire student/teacher/curriculum interaction.

In the area of specifying objectives, this planning effort will:

(1) assist school district staff in discriminating levels of abstraction in setting objectives;
(2) provide guidelines for developing planning objectives;
(3) present techniques for rating objectives in terms of relative priority; and
(4) assist in establishing a program structure into which appropriate activities can be organized.

You are also provided with the skills and knowledge necessary to adopt, modify, or design measurement instruments—indicators of performance—to assess school district success in attaining the goals and objectives established for particular curriculum areas. The purpose of administering these instruments is not to test students, but to enable school personnel to collect data on the total student/teacher/curriculum interaction, so that areas of strength and weakness can be identified and needed improvements made.

In order to make the best possible use of the material presented

here, district personnel should be aware of the kinds of broad criteria which must be met if a planning project of this kind is to be implemented successfully. As outlined below, these conditions fall into the general areas of commitment, communication, and continuity.

- District administrators should be committed to implementing and supporting the project for several years and willing to supply the financial support required to sustain the effort.
- Widespread staff involvement should be encouraged in planning and decision-making, although participation should be on a voluntary basis.
- Those involved must be willing to invest their time and energies, and should be flexible in accepting the new roles and activities necessary when any new system is being introduced. Since this system relies on the successful interaction of groups of people with different perspectives, only individuals who are willing to state their views openly and explicitly should seriously consider participating.
- Those involved in the project should be sensitized to the philosophy upon which comprehensive planning is based, i.e., that the people directly concerned with specific activities should share in the decision-making process related to those activities.
- Provision should be made for organizational restructuring to facilitate the flow of information developed through implementation of the project.
- Consideration must be given to providing a management system able to implement whatever needed changes are identified by this effort.

The following paragraphs provide more concrete information on how the material contained in this book has been organized.

In Section One, Basic Skills and Concepts, you are introduced to the concepts upon which this planning effort is based. Various types of objectives and goals are discussed, and methods are suggested for setting planning objectives and ranking them in order of their relative importance. You are shown how to organize selected objectives into a program structure and how to assess the extent to which those objectives are being attained, through the use of measurement instruments referred to as indicators of performance.

Section Two, Beginning Implementation, deals with the implementation of a curriculum level planning effort based upon the concepts discussed in Section One. Here you will learn how to develop performance indicators as well as how to prepare for and schedule the administration of the indicators.

In order to implement the planning effort discussed in this book with maximum effectiveness, one person—a project manager—should be assigned responsibility for coordinating and monitoring the entire project. Section Three, Project Manager's Guide, is designed to assist the project manager in cultivating the managerial and organizational skills needed to oversee this project most effectively. A project manager should read Section Three *before* reading Section One and Section Two. The Appendix outlines criteria for successful implementation.

The exercises in this volume are not considered critical reading if you are interested only in the concepts and methodology of this approach. However, *these are essential to actually implementing the planning process.* They provide the mechanism of exchange necessary to initiate and maintain this process.

Field testing of this material indicated the desirability of the exercises being distinctive. Thus, all exercises have been printed on gray paper. The change from white to gray is a signal for you to change from a reading mode to application of the concepts discussed. Furthermore, the gray tint will make it easier to refer back to completed exercises as you progress through the material.

Finally, as a further aid to the reader, the three Sections of this volume are separated from one another by thick card stock paper.

SECTION ONE: BASIC SKILLS AND CONCEPTS

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*For readers whose primary interest is to apply this planning technique, exercises have been included. These are considered to be essential for actually initiating the planning process. For others, whose primary interest is simply to become acquainted with this technique, the exercises are not essential. However, reviewing them as you work through the sections may help in a better understanding of the process.

INTRODUCTION TO SECTION ONE

As indicated in the Overview, this book contains three individualized/self-instructional sections: Section One, Basic Skills and Concepts, provides participating teachers and administrators with individual and group activities that teach basic skills and concepts essential to the successful construction of performance indicators in a subject area; Section Two, Beginning Implementation, covers the implementation of performance indicators, from their development to an explanation of scoring and summarizing the resulting data; and Section Three, the Project Manager's Guide, provides the person responsible for the management of the project with guidelines and information on the development and implementation of the planning project described.

Section One introduces the concepts which are central to the planning project outlined in this book. You will become familiar with the concepts and also with the interrelationships among them. You will be able to relate program structure to planning objectives, performance indicators to planning objectives, etc.

When you have completed Section One, you should have:

(1) a list of planning objectives for a specific curriculum area;
(2) both priorities and numerical preferences for those planning objectives;
(3) a program structure; and
(4) an appreciation of the need for and use of indicators of performance.

The concepts and terminology presented will become comprehensible as you read through this section.

SECTION ONE

UNIT 1

PLANNING OBJECTIVES

This unit:

1. Introduces the concept of "planning objectives" and illustrates the relationship of that concept to "vague goals" and "behavioral objectives."

2. Provides guidelines for the development of "planning objectives."

3. Discusses some problems involved in developing "planning objectives."

VAGUE GOALS, BEHAVIORAL OBJECTIVES, AND PLANNING OBJECTIVES

In order to improve a school district's educational programs, there must be some means of evaluating their degree of success. A clear statement of objectives provides the necessary touchstone. Objectives express the ideals, directions, expectations, or practical needs of a specific district. Comparing actual achievements with stated objectives provides a basis for constructing and evaluating educational programs and activities.

Objectives can be stated in different ways. Most often, we see two basic kinds of objectives.

Some objectives, like those listed below, are called "vague goals":

"Students should have contact with great ideas."

"Students should learn moral and spiritual values."

"Students should be prepared for citizenship."

Other objectives, which are very specific, such as those listed below, are called "behavioral objectives":

"The student will be able to identify the musical notes of the scale."

"The student will be able to identify five critical events leading to the Battle of Hastings."

"The student will be able to solve a first-order quadratic equation."

"The student will be able to draw a random sample for a survey from a telephone directory."

You may find it very easy to distinguish between the two basic kinds of objectives: "vague goals" are so ambiguously stated that they only recommend *where to go* (the direction), while "behavioral objectives" are so explicitly stated that they point out exactly *what to do* to assess actual performance.

When considering objectives in terms of planning processes, one must first define the subject area in which one is operating, e.g., science, reading, mathematics, etc. Goals and objectives can then be specified which relate to this area. Objectives stated in philosophical terms are referred to as vague goals, while behavioral objectives are stated in terms of specific, observable performance. In the middle range of the continuum between the two lie what we refer to as *planning*

objectives. These objectives are more concrete than vague goals but flexible enough to allow versatility in processing information and making decisions about the future.

If you were going to represent these three items on a continuum, the vague goals would be the most abstract, the behavioral objectives would be the most concrete, and the planning objectives would be in the middle range but toward the vague goals end of the continuum (see Figure 1).

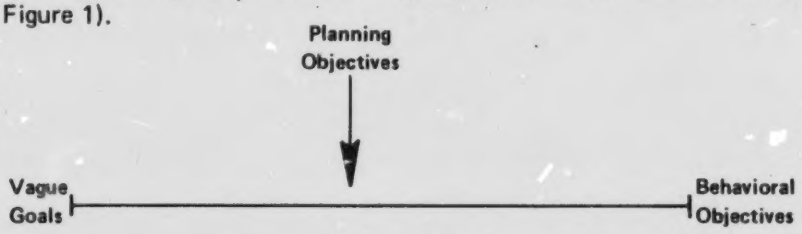

Figure 1. The Objective Continuum.

Planning objectives have a single function—*to classify ongoing activities in the school system into a few unambiguous planning areas.* These planning areas will, then, assist teachers and administrators in recommending both improvements in current programs and possibilities for the development of new programs.

Vague goals and planning objectives may sometimes become related concepts when they are dealt with in different contexts. For instance, "Students should develop an appreciation of their own heritage" is a vague goal at the school district level, but may be considered a planning objective within a humanities curriculum area.

Vague goals, planning objectives, and behavioral objectives are closely related. A vague goal can be developed into a set of planning objectives. Similarly, each planning objective can be developed into a set of behavioral objectives (examples of these relationships are given on pages 24 and 25). There is no standard set of planning objectives for a specific vague goal, nor is there a pre-packaged set of behavioral objectives for a particular planning objective. *The planning objectives and behavioral objectives established in implementing this project should satisfy all members of the planning group involved.*

TWO EXAMPLES OF THE RELATIONSHIP BETWEEN VAGUE GOALS AND PLANNING OBJECTIVES

Example 1. For Liberal Arts Curriculum Area

Vague Goal	*Planning Objective*
Quality education should provide the individual with the opportunity to express himself creatively.	(a) Students are to obtain basic skills with the focus on reading and verbal expression. (b) Students will develop the ability to organize ideas with the focus on written expression. (c) Students are to explore techniques for effective idea presentation. (d) Students are to gain varied experiences in speaking to other individuals and groups. . . .

Note: A different set of "planning objectives" may be developed for the same vague goal in another curriculum area, e.g., mathematics.

Example 2. For Social Studies Curriculum Area

Vague Goal	*Planning Objective*
Quality education should provide students with a basic knowledge of social studies.	(a) Students will be able to differentiate forms of social structure. (b) Students will gain knowledge about the major ideas and concerns of social scientists. (c) Students will be able to use analytic scientific procedures effectively in social studies. . . .

If this is your *second* reading of this material, TURN TO PAGE 29.

EXERCISE 1

Indicate whether or not each of the following statements could be classified as a planning objective, then check your answers against the correct answers which follow.

	Yes	*No*
1. The student is to obtain skill in computing and carrying out mathematical computations.		
2. The student is to be provided with a basis for communication and a common core of traditions and values.		
3. The student is able to make wise choices about spending, saving, and borrowing money.		
4. To develop an environment in which appropriate personal development may occur.		
5. The student will be able to name, without mistakes, four modern mass media.		
6. To develop the ability to apply mathematics to practical situations.		
7. The student will be able to calculate the probabilities for five statistical problems within five minutes.		
8. The student will learn facts about the ways in which people use and misuse natural resources.		

ANSWERS TO EXERCISE 1

1. Yes.

2. No. This is a vague goal, because the statement neither demands an observable activity (the major requirement of a behavioral objective) nor enables one to classify its accomplishment (the requirement of a planning objective).

3. Yes. However, it is a poor example because "wise choices" would be difficult to define.

4. No. This is a vague goal. The same reasons given in answer 2 above are applicable here.

5. No. This is a behavioral objective, because it concerns both an observable activity (name four modern mass media) and a specified standard of accomplishment (without mistakes).

6. Yes.

7. No. This is a behavioral objective, because it involves both an observable activity (calculate the probabilities for five statistical problems) and a specified time for its accomplishment (within five minutes).

8. Yes.

If you missed more than one item *or* would like to see another group of examples, continue reading.

If you missed one item or less *and* would like to proceed, TURN TO PAGE 29.

Before we look at another group of examples, one point should be made here: the answers supplied on page 22 involve an element of arbitrariness. Similarly, if you examine some statements of objectives in your school district, whether they be stated as goals, as behavioral objectives, or in some other way, you may find a mixture of vague goals, planning objectives, and behavioral objectives.

Movement along the continuum showing vague goals/planning objectives/behavioral objectives is from general to definite to specific. Vague goals are general and cover a broad area of activities; to provide students with a basic understanding of the concepts of mathematics is a vague goal because it relates to the entire field of mathematics. To develop in students the basic skills relative to multiplication is a planning objective; here, the field of mathematics has been narrowed down to a specific area, multiplication. For students to be able to recite the first 10 units of the multiplication tables is a behavioral objective because it focuses the planning objective on a specific activity that students should be able to perform.

The examples which follow are given in the form of a vague goal, a few possible planning objectives derived from it, and a possible set of behavioral objectives developed from several of the planning objectives outlined.

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TWO EXAMPLES OF THE RELATIONSHIP BETWEEN VAGUE GOALS, PLANNING OBJECTIVES, AND BEHAVIORAL OBJECTIVES

I. Vague Goal	Planning Objective	Behavioral Objective
Quality education should help every student develop an understanding of the means used by man to communicate.	1. The student will be able to recognize different modes of human communication.	1a. A fifth-grade student should be able to list four ways to relay his thoughts to someone in another part of the country. (Acceptable answers: telephone, telegram, letter, verbal message.) 1b. Given three message-conveying situations—a face-to-face verbal, an interposed, and a non-verbal communication situation—a ninth-grade student should be able to differentiate among them without mistakes. (Acceptable answers: Definitions: FACE-TO-FACE VERBAL/anything spoken or written; INTERPOSED/communication with an intervening person or object in between; NON-VERBAL/communication without words.)
	2. The student will be able to apply the 3R's to practical situations requiring interpersonal communication.	2a. A second-grade student will be able to solve the following problem in two minutes: "Johnny has some money. If he lends $5.00 to Mary, he will have $2.50 left. How much does he have now?" (Acceptable answer: $7.50.) 2b. A first-grade student will be able to write his name, address, and phone number without mistakes. 2c. A second-grade student will be able to simulate a phone conversation with another student using proper telephone manners. (Acceptable performance: introduction of caller first, speaking clearly and distinctly, and hanging the phone up gently when the conversation is over.) 2d. A third-grade student will be able to read a 100-word passage from his social studies textbook in front of other students in the classroom. (Acceptable performance: 95 percent accuracy.)
	3. The student will be able to analyze and evaluate the language used in written communication.	3a. Given a passage from an editorial in the Students Campus News, a junior high student should be able to state the purpose of the writer. 3b. Given a passage to read, a senior high student should be able to identify not only the intent but also the style in which it is written. 3c. Given a reading selection in which an emotion is depicted, a tenth-grade student will be able to describe the emotion.
	4. The student will become acquainted with interpersonal communication technologies.	4a.
	5. The student will have some familiarity with the mass media.	5a.

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II. Vague Goal	Planning Objective	Behavioral Objective
Quality education should help every student develop an understanding of the means to communicate about man in society.	1. The student will develop curiosity about human affairs.	1a. Given a list of five countries from different continents, a fifth-grade student should be able to identify the country representing the continent of Europe and some cultural aspects associated with the country. (Acceptable answers: religion, costume, most popular vocation, famous sports, famous festivals, or any correct cultural aspect.) 1b. A twelfth-grade student should be able to identify two conflicting issues from the Democratic and Republican Party platforms for the 1972 presidential election. (Acceptable answers: Vietnam War, poverty bills, economy, etc.)
	2. The student will be able to use analytic-scientific procedures effectively.	2a. A ninth-grade student should be able to identify the major issues in the United States civil rights struggle during the 1950s and the early 1960s. (Acceptable answers: separate and unequal educational facilities, Jim Crow laws, unfair voting practices, etc.) 2b. A fifth-grade student should recognize the logical error in the following statement: "The United States has the highest per capita income of all the countries in the Western Hemisphere; therefore, average savings per family are higher than those of other countries in the Western Hemisphere." (Acceptable answer: savings are independent of income.)
	3. The student will become sensitive to creative-intuitive methods of explaining the human condition.	3a. A ninth-grade student should be able to present a 3-minute talk on any documentary film that he has seen during the past year. (Guidelines for acceptable answers include accuracy regarding content and clarity of details.) 3b. Given the personalized account of a bystander at the assassination of John F. Kennedy and a synopsis of the *Warren Report*, a twelfth-grade student ought to be able to distinguish between the personalized account and the scientific-objective account by comparing the two approaches. (Acceptable answer: 1. Source of data, 2. The range of data, 3. Personal involvement, etc.)

EXERCISE 2

Here is another exercise designed especially to see whether you are able to distinguish the three kinds of objectives. Indicate whether or not each of the following statements could be classified as a planning objective; then, check your answers against the correct answers which follow.

	Yes	No
1. The students should be able to identify the basic colors.		
2. The students should gain basic skills in painting.		
3. The school must provide for the development of creative abilities and afford avenues for their expression in constructive activities.		
4. Students should be exposed to various fine arts media.		
5. The students should be provided with experiences in both aesthetic appreciation and self-expression in the arts.		
6. The students should be able to identify the sounds of violin, viola, and cello while listening to a recording of a string quartet.		
7. The students should have the ability to criticize an object of art.		

ANSWERS TO EXERCISE 2

1. No. This is a behavioral objective, because it defines an observable activity.

2. Yes. This should provide a basis for classifying classroom activities.

3. No. This is a vague goal, because the statement is too vague to be used to classify activities.

4. Yes.

5. Yes. At the district level, this can be a planning objective; at the
   or curriculum level, it is too broad to be a planning objective,
   No. since "the arts" includes fine arts, liberal arts, etc.

6. No. This is a behavioral objective, because it defines an observable activity.

7. Yes.

If you missed one item or less, continue reading.

If you missed more than one item, REVIEW PAGES 17 to 20 before continuing.

SOME GUIDELINES FOR DEVELOPING PLANNING OBJECTIVES

So far we have discussed planning objectives by considering them as they relate to vague goals and behavioral objectives. Our next question is, "How does one go about developing planning objectives?" Unfortunately, there is no definite or best way to develop planning objectives; experience in school districts has shown, however, that the development of planning objectives is *best* done by a group. The construction of planning objectives by a group is influenced by such factors as the nature of the work and responsibilities of various group members within the school district, their ability to reach agreement and to understand points of mutual disagreement, and their willingness to share ideas and feelings. The planning objectives developed may be subjected to criticism from outside the group but, once agreement has been reached, the group will find that the experience of planning together is very rewarding.

A possible set of broad guidelines to follow in the development of planning objectives may include the following steps:

1. Gather information about goals from district publications, memoranda, and statements about policy, objectives, and curriculum and from ongoing programs and activities.
2. Select and set goals for your district if they do not already exist. (This is most applicable at the administrative level.)
3. Establish a Planning Objectives Group for each curriculum area.
4. Have each group identify the information they need in order to develop planning objectives.
5. Have each group set up tentative planning objectives supported by clarifying statements.
6. Have each group formulate a set of planning objectives by program supported by clarifying statements.

The following account, reported by the Radnor School District Mathematics Planning Group, outlines the procedures they followed in developing planning objectives.*

> During the fall of the 1969-70 school year, all mathematics teachers in the district were asked to submit a list of no more than 10 curriculum objectives.

*See Supplementary Reading 8.

In December, a committee of teachers, coordinators, and principals was formed to work with Sanford Temkin and Joseph Mirsky of Research for Better Schools, Inc. (RBS). The committee included at least one person from each of the district's six schools as well as broad representation from across grade levels. Beginning in December, a series of Radnor-RBS meetings were held which resulted in agreement on a final list of six objectives. The objectives of the Radnor mathematics program as established by the Planning Group are that students:

(1) obtain skill in computing and carrying out algorithms;
(2) gain an understanding of concepts and structures;
(3) develop the ability to apply mathematics to practical situations;
(4) develop the ability to use problem-solving techniques;
(5) form good study and work habits in mathematics; and
(6) acquire an appreciation of mathematics.

As soon as planning objectives have been developed, the next steps are (a) assigning priority to each planning objective and (b) developing performance indicators to provide criteria with which to evaluate areas of strength and weakness. Each of these steps will be dealt with in detail in later units.

PROBLEMS IN DEVELOPING PLANNING OBJECTIVES

Some problems encountered by those who have had the experience of constructing planning objectives for their curriculum areas have been:

a. *Confusion with regard to the level of abstraction.*
Would the planning objectives developed be too abstract? Would they be too specific? Since there is really no standard by which to measure this, as long as the members of the group agree that their planning objectives will enable them to classify district activities, those planning objectives are on the "proper" level of abstraction.

b. *Overlapping planning objectives.*
Often it is hard to draw a clear-cut boundary line between one planning objective and another. The best way to deal with overlapping is to give as many examples as possible for each planning objective involved, with the hope that their respective boundaries will become clearer to the members of the group as work progresses.

c. *Program-objective confusion.*
In some instances, one might propose a special program in the belief that he was talking about an objective. Planning objectives are not programs. The following definition of "program" is given in Unit 3: "A 'program' is a set of related activities characterized by subject matter, grade level, age, level of student proficiency, or any combination of these." For instance, "Using an individualized reading approach in the senior high schools" is a program, not a planning objective.

d. *Flexibility of planning objectives.*
As pointed out earlier in this unit, planning objectives can be constructed differently by people with different points of view. Each person might gain some new insights and want to suggest revisions as planning progresses; therefore, it would be wise to keep the list of planning objectives open-ended and flexible.

e. *Psychological uncertainty of some group members.*
Some people may feel uneasy about sharing their ideas with others and being involved in group planning. At times, they may ask such questions as: "What are we going to do with this stuff?," "Where are we heading?," "Where are you taking me?," and "What does this have to do with kids?" These are the kinds of questions frequently asked by people when they are faced with the prospect of change, and such questions often reflect uncertainty about roles, role expectations, or interpersonal relationships. The members of a planning group should help each other to become more comfortable with the planning process. When a good mutual comfort level has been reached, the group can move ahead at a steady pace.

On page 33 is an exercise for developing planning objectives. A group mode is suggested. However, as an individual reader, you may wish to complete the first step.

GROUP EXERCISE 1

1. Independently, each member of the group should develop a set of planning objectives (supported by clarifying statements, if necessary) for the following goal: "Students will be provided with an understanding of *modern scientific applications.*" (Substitute another goal if the goal stated above is not appropriate for your curriculum area.)

2. The group should meet to discuss the process of developing planning objectives and various problems that have been encountered.

3. The group should decide upon a curriculum area and develop a set of planning objectives (supported by clarifying statements, if necessary).

4. As a group, discuss problems that you are likely to encounter when:
   (a) explaining the function of planning objectives to others in your school district, and
   (b) trying to develop planning objectives for your district.

SUMMARY OF UNIT 1

Planning objectives make it possible to classify ongoing school district activities into a few unambiguous planning areas. After reading this unit, you should be able to: distinguish planning objectives from other types of objectives; develop planning objectives for selected programs in your school district; and anticipate some of the problems which may arise both in explaining the function of planning objectives to others in your district and in trying to develop planning objectives for your district. The way these planning objectives are used and their contribution to your planning efforts will become clearer as you become familiar with the ideas, concepts, and skills presented in the following units.

SUGGESTED SUPPLEMENTARY READINGS

(Unit 1: Planning Objectives)

1. *Behavioral Objectives Curriculum Guide for Grade Seven Mathematics.* Doylestown, Pa.: Bucks County Public Schools.

   This curriculum guide provides teachers with a framework for developing a seventh-grade mathematics program appropriate to meeting individual differences in students (below average, average, and above average).

2. *CSE Hierarchical Objectives Charts.* Los Angeles, Calif.: Center for the Study of Evaluation, 1973.

3. *Developing and Writing Performance Objectives.* Tucson, Arizona: Educational Innovators Press, 1971.

4. *Instructional Goals.* Radnor, Penna.: Radnor Schools, February, 1970.

   The goals developed in this paper were modeled upon goals generated by the Educational Testing Service for the Pennsylvania State Board of Education. The goals are oriented to specific programs within the content categories of communications, liberal arts, and personal development. A fourth goal, organization, involves strategies designed to present content goals most effectively.

5. *IOX Measurable Objectives Collections.* Los Angeles, Calif.: Instructional Objectives Exchange, 1973.

6. Leles, Sam and Raymond Bernabei. *Writing and Using Behavioral Objectives.* Tuscaloosa, Alabama: W.B. Drake & Son Printers, Inc., 1969.

Based on existing knowledge and understandings about behavioral objectives, the authors' focus is on the operationalization of the concept by providing learners with exercises for identifying, writing, and using behavioral objectives.

7. Mager, Robert F. *Preparing Instructional Objectives.* Palo Alto, Calif.: Fearon Publishers, Inc., 1962.

8. Miller, Roger. "Teachers' Manual." Radnor School District Mathematics Performance Indicators. Radnor, Penna.: Radnor Township Schools, 1970.

9. National Assessment of Educational Progress. *Social Studies Objectives.* Ann Arbor, Mich., 1970.

   National Assessment of Educational Progress carried out, during 1969 and 1972, a series of objectives assessments in: art, career and occupational development, citizenship, literature, mathematics, music, reading, science, and writing. *Social Studies Objectives* is one of the booklets NAEP published. Each booklet contains listings of objectives related to one subject area and categorized by four age levels: 9, 13, 17, and young adults (between 26 and 35). These listings are helpful in developing both planning objectives and behavioral objectives.

10. *Performance Objectives in Education.* Englewood Cliffs, N.J.: Educational Technology Publications, 1973.

11. *Quality Education Program Study (Pennsylvania Goals).* Doylestown, Pa.: Bucks County Public Schools, June, 1971.

12. SCORE *Instructional Objectives Catalog.* Iowa City, Iowa: Westinghouse Learning Corporation, 1973.

SECTION ONE

UNIT 2

PRIORITIES AND NUMERICAL PREFERENCES FOR PLANNING OBJECTIVES

This unit:

1. Introduces the concepts of "priorities" and "numerical preferences" for planning objectives.

2. Presents two methods of assigning numerical preferences to planning objectives.

3. Provides exercises on assigning priorities and numerical preferences to planning objectives.

PRIORITIES AND NUMERICAL PREFERENCES

In the previous unit we spoke about planning objectives. Simply listing a set of planning objectives, however, is not sufficient. The important thing is what people do with them. Due to the practical constraints of cost, time, space, and human abilities, a district usually is not able to act upon all planning objectives at the same time. As a matter of fact, the superintendent usually is forced to select only a few essential areas upon which to concentrate. Therefore, the presumption that all planning objectives are of equal importance is not realistic. We have to find a way to rank planning objectives according to their relative importance.

Assigning priorities is one way to solve this problem. An example showing the priorities assigned to a set of planning objectives is given below:

Planning Objective	Priority
Objective A	Second
Objective B	First
Objective C	Fourth
Objective D	Third

In this example, B is the most important planning objective, A the second most important, D the third most important, and C the least important.

Assigning priorities is simply a question of ranking. It does not tell us *how much more* important one planning objective is than another. For instance, in the example above we have no idea *how much more important* objective B is than objective A.

Numerical preferences allow us to determine how much more important one planning objective is than another. Assigning numerical preferences is a procedure by which an individual assigns a number to each objective in a set of planning objectives. Generally, the higher the number, the more important the objective. The numbers reflect the relative importance of planning objectives to *each other*.

An example showing the numerical preferences assigned to a set of planning objectives is given below:

Planning Objective	Numerical Preference Assigned
Objective A	70
Objective B	96
Objective C	4
Objective D	30

In this example, B—with a value of 96—was obviously the most important objective, while C—with a value of 4—is relatively unimportant.

The relative importance of each of these objectives can more easily be compared if the numerical preferences are changed to percentages, which are referred to as *normalized preferences.*

In order to change numerical preferences to normalized preferences, complete the following steps:

1. Total the numerical preferences assigned. In the above example the total is 200.
2. Divide individual numerical preferences by the total. For objective A in the example this is 70/200, which = .35.
3. Change the decimal to a percentage, by multiplying the decimal by 100. For example, .35 x 100 = 35 percent.

Note: The normalized preferences for a given set of objectives should always add up to 100 percent.

The following is an illustration of the conversion from numerical preferences to normalized preferences.

Planning Objective	Numerical Preference Assigned	Normalized Preference, Percent
Objective A	70	35
Objective B	96	48
Objective C	4	2
Objective D	30	15
TOTAL	200	TOTAL 100

The normalized preferences not only tell us the relative priorities among the four objectives, but also give us a good idea of how much more or less important one objective is than another. For instance, in the last example, B—with a normalized preference of 48 percent—is almost as important as the other three objectives combined. Objective C—with a normalized preference of only 2 percent—can be said to have relatively little importance to the school system.

If this is your *second* reading of this material, TURN TO PAGE 51.

EXERCISE 1

Compute the normalized preferences for the numerical preferences given below, placing your answers in the appropriate spaces:

Planning Objective	Numerical Preference Assigned	Normalized Preference
Objective A	100	_____ (2)
Objective B	75	_____ (3)
Objective C	50	_____ (4)
Objective D	25	_____ (5)
	TOTAL = _____ (1)	TOTAL = _____ (6)

Check your answers with those at the bottom of this page.

Answers:

(1) 250 is the total
(2) 40 percent
(3) 30 percent
(4) 20 percent
(5) 10 percent
(6) 100 percent

EXERCISE 2

Indicate below which statements involve priorities and which indicate numerical preferences:

..... 1. Objective E is more important than objective F, and objective F is more important than objective G.

..... 2. Given the following planning objectives, order them in terms of importance:

A. Students will be able to understand the investigative nature of science.

B. Students will develop the abilities and skills needed to engage in science-related activities.

C. Students will gain knowledge of fundamental facts and principles of science.

D. Students will be able to understand classical, as well as contemporary, scientific achievements and their implications for life.

..... 3. Objective V is half as important as objective U, while objective W is 3/4 as important as objective U.

..... 4. A panel of three reading specialists in Park County School District ranked four objectives in the following order: O, P, Q, and R in terms of priority, and then assigned the numbers 100, 80, 40, and 20 to them.

ANSWERS TO EXERCISE 2

1. Priority. This statement describes the ranking of objectives E, F, and G.

2. Priority. The task requested here is simply ranking the planning objectives.

3. Numerical Preference. This statement describes the relative importance of objectives U, V, and W.

4. Numerical Preference. The assigned numbers reflect the relative importance of O, P, Q, and R according to our definition of "numerical preference" (see page 41).

If you missed one or more items, continue reading. If all of your answers were correct, turn to page 51.

EXERCISE 3

Identify each of the following situations as priority, numerical preference, or neither:

..... 1. Owing to practical constraints of various kinds, the school board of New Hope School District was forced to select one of 11 problems to act upon first.

..... 2. Black Stone District listed 10 objectives which were all considered very important and decided to allocate equal amounts of money to each objective.

..... 3. The Mathematics Planning Group of Red Cedar Elementary School developed nine planning objectives and each group member was asked to rank them.

..... 4. Numbers from 1 to 100 were assigned to five objectives to indicate their relative importance.

..... 5. When proposing some educational goals, a district superintendent said to his board members, "All of them are important, but some are possibly more urgent than others. Let's determine which deserve our greatest attention."

..... 6. A Social Sciences Planning Group in Rocky Mountain School District assigned different numerical weights to six planning areas as follows:

PLANNING AREAS	WEIGHTS
A	100
B	87
C	63
D	40
E	35
F	10

ANSWERS TO EXERCISE 3

1.	Priority.	Choosing the most important problem is a process of assigning priorities.
2.	Neither.	Equal importance is neither priority nor numerical preference.
3.	Priority.	Ranking is simply assigning priorities.
4.	Numerical Preference.	See definition of numerical preference on page 41.
5.	Priority or Numerical Preference.	This superintendent expressed an intention to differentiate the relative importance of the objectives, but not enough information is given to determine how he was going to do it—through assigning priorities or numerical preferences.
6.	Numerical Preference.	See definition of numerical preference on page 41.

If you missed no more than one item, continue reading.

If you missed more than one item, review the PRIORITIES AND NUMERICAL PREFERENCES section on pages 41 to 43 before continuing.

The following pages include exercises showing how priorities and numerical preferences can be assigned to planning objectives. This planning process has been designed to have priorities established by a planning group, which includes teachers and school district administrators. Since schools exist to provide services for pupils, and schools are designed for the purpose of meeting pupil needs, some districts may wish to include parent and pupil input in the suggested procedures.

EXERCISE 4

As an individual, assign *priorities* to the planning objectives which you developed while working on Unit 1.

Record your priorities below:

	Your Planning Objectives	Your Priorities
A		
B		
C		
D		
E		
F		
G		
.		
.		
.		

GROUP EXERCISE 1

As a group, assign *priorities* to the planning objectives developed in Unit 1. This can be done by having each individual within the group compare his rankings with the rankings of other members of the group. (If reading as an individual, this exercise may be omitted.)

Note: It may be difficult to develop group priorities. If this is the case, try to get those who have differences to talk about them. Then the group may be more likely to agree. Allow for the possibility that agreement may not be forthcoming. If you see this as a real problem, allow for two (or even three) sets of priorities. This will give you some idea of the kinds of compromises needed to reach agreement on school programs.

Record your group priorities below:

	Your Planning Objectives	Your Group Priorities
A		
B		
C		
D		
E		
F		
G		
.		
.		
.		

TWO METHODS OF ASSIGNING NUMERICAL PREFERENCES

I. The Churchman-Ackoff Method

The Churchman-Ackoff method of weighting objectives was developed for estimating the relative importance of individual objectives within a set of objectives. The key is to make the relative values assigned to the objectives internally consistent. (For further information, read Supplementary Readings 2 and 6.)

The procedures followed are outlined below:

1. Given a set of objectives, rank them in priority order with the most important objective first.

2. Assign the value of 100 to the most important objective.

3. Assign any number from 1 to 100 to each of the other objectives in descending order of importance. The value assigned to each objective should reflect its importance in relation to the most important objective, which was assigned a value of 100.

4. Compare the value of each objective with the combined values of a few of the objectives ranked below it.

5. If necessary, adjust the values of each of the objectives being considered in step 4.

Example:

First Planning Objective	=	100
Second Planning Objective	=	55
Third Planning Objective	=	45

If the second and third planning objectives together are more important than the first, the sum of their values should be

greater than the value of the first planning objective. The following adjustment might be appropriate.

First Planning Objective	=	100
Second Planning Objective	=	65
Third Planning Objective	=	55

Similar adjustments should be made until the value stated for each planning objective reflects its importance in relation to the other planning objectives.

6. Normalize the final values. (For a review of the procedure for preference normalization, see pages 42 and 43.)

Two exercises for assigning numerical preferences are given on the following pages. Exercise 5 is to be done by any individual, and Group Exercise 2 is to be done by a group (again, this is optional for individual readers).

The Group Exercise will help a group in exchanging opinions, arguing, and coming to an agreement on the correct preferences for the planning objectives. *DO NOT AVERAGE* individual numerical preferences, since averages tend to de-emphasize differences rather than to clarify preferences.

EXERCISE 5

As an individual, assign *numerical preferences* to the priorities you established in Exercise 4 (on page 53); now, *normalize* the numerical preferences assigned. Record your results below:

Your Planning Objectives	Your Individual Priorities	Your Individual Numerical Preferences	Normalized Preferences
A			
B			
C			
D			
E			
F			
G			
H			
I			
J			
.			
.			
.			

GROUP EXERCISE 2

As a group, assign *numerical preferences* to the priorities you established in Group Exercise 1 (on page 55); now, *normalize* the numerical preferences assigned. Record your results below. (If reading as an individual, you may wish to skip this exercise.)

Your Planning Objectives	Your Group Priorities	Your Group Numerical Preferences	Normalized Preferences
A			
B			
C			
D			
E			
F			
G			
H			
I			
J			
.			
.			
.			

*II. A Modified Delphi Method**

Assigning numerical preferences or priorities may be a difficult task for a group. A school district can only respond to, and effectively operate with, one set of priorities or preferences for objectives at a time, although the priorities of different people may provide some help in resolving conflict. Consequently, the way in which a group establishes priorities may be important. The following is a discussion of a modification of the Delphi method which is used to help a group to achieve consensus.

The procedure is as follows:

1. A "facilitator" is selected from a group of individuals who have agreed to participate in a few rounds (or sittings) to assign priorities to objectives.

2. In the first round, each individual is asked to assign a numerical value to each objective.

3. In the second round, the facilitator provides the group with the group *median* and *interquartile range* for each objective. (See Supplement, pages 68 and 69, for an explanation of these terms.) He instructs each of the participants to reconsider his estimates, make a revised estimate, and, if his new estimate lies outside the indicated interquartile range, briefly state the reason for his opinion.

4. In the third round, the facilitator summarizes the reasons given by those individuals with extreme answers in the second round. Each participant is asked to comment on those reasons again and to prepare a new estimate.

5. This process is continued until, finally, the group has reached agreement on each answer.

*Detailed discussions of the Delphi method can be found in Supplementary Readings 1, 3, 4, 5, and 7.

GROUP EXERCISE 3

1. Repeat Group Exercise 2, on page 61, using the modified Delphi method. Record your results below:

Your Planning Objectives	Your Group Numerical Preferences	Normalized Preferences
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		
.		
.		
.		

2. Compare the results obtained in this exercise with those obtained in Group Exercise 2. Discuss the advantages and disadvantages of each method.

SUMMARY OF UNIT 2

This unit has presented procedures for assigning priorities and numerical preferences to planning objectives.

We encourage community groups, parent groups, and teacher groups, as well as school district administrators to use such procedures. They offer at least three advantages: (1) meaningful implications may emerge as various community groups discuss and debate the relative importance of different pupil needs as related to school district planning objectives; (2) by examining these planning objectives, community groups will be better able to understand school problems and needs; and (3) the numerical preferences assigned by different groups, e.g., parent and teacher groups, can provide school district personnel with guidance on how those groups perceive school problems and the nature of any disagreements that might prevent consensus among the groups.

SUPPLEMENT TO UNIT 2

Median

The *median* of a group of numbers is the middle number. For instance, if you want to find the median of the numbers 5, 7, 1, 2, 8, 1, 6, 9, this means you want to find the middle number. Order the numbers from the lowest to the highest as indicated: (1, 1, 2, 5, 6, 7, 8, 9); the median would be between 5 and 6, or 5 1/2.

Interquartile Range

The *interquartile range* is the middle range of the values which excludes the lower and upper quarters of a set of *ranked* numbers. The lower boundary of the range is located above 1/4 and the upper boundary above 3/4 of the numbers involved.

For example, given the set 1, 1, 2, 3, 4, 4, 6, the lower boundary falls between 1 and 2 (the second and the third numbers of this set), i.e., 1 1/2; and the upper boundary falls between 4 and 4, i.e., 4. Thus, the interquartile range for this set is 1 1/2 to 4.

How do you find the lower and upper boundaries within a given set?

1. Find the median of the set of numbers.

   (a) If it is a set which has an odd number of numbers, e.g., 1, 1, 2, 3, 4, 4, 6, the median is 3.

   (b) If it is a set which has an even number of numbers, e.g., 1, 1, 2, 3, 4, 4, the median should be between 2 and 3, i.e., 2 1/2.

2. Divide the set in half, and find the middle number for each half.

   (a) In the set of 1, 1, 2, 3, 4, 4, 6 (an odd number set), the

median itself (3) should be included in each half of the numbers, that is, the first half of the set of numbers is (1, 1, 2, 3) and the middle number is between 1 and 2, i.e., 1 1/2; the middle number for the second half (3, 4, 4, 6) is between 4 and 4, i.e., 4.

(b) In the set of 1, 1, 2, 3, 4, 4, (an even number set), the middle number for the first half (1, 1, 2) is 1, and for the second half (3, 4, 4) is 4.

3. The middle number for the first half is the lower boundary of the interquartile range and the middle number of the second half is the upper boundary. Therefore, for the odd number example, the interquartile range is 1 1/2 to 4; for the even number example, the interquartile range is 1 to 4.

SUPPLEMENT SELF-TEST

Find the interquartile range for the following sets of numbers:

1. 5, 5, 6, 7, 8, 8, 9.
2. 2, 3, 3, 4, 5, 6, 6, 7.

Check your answers with those at the bottom of this page.

Answers:

1. 5 1/2 to 8.
2. 3 to 6.

SUGGESTED SUPPLEMENTARY READINGS

(Unit 2: Priorities and Numerical Preferences for Planning Objectives)

1. Anderson, Donald P. "Clarifying and Setting Objectives on an Intermediate School District's Objectives Utilizing the Delphi Technique." Paper presented at the Annual Meeting of the American Educational Research Association; Symposium on Exploring the Potential of the Delphi Technique by Analyzing its Applications, March, 1970.

   One of the most important, but often neglected, processes in any organization is that of explaining and setting priorities on objectives or target conditions. The situation is confounded in service systems such as intermediate school organizations. Consensus on such priorities is rarely achieved or even attempted. The Delphi technique, built on the strength of informed intuitive judgment and designed to produce consensus, provides a procedure to alleviate this problem situation.

2. Churchman, C. West, Russel L. Ackoff, and E. Leonard Arnoff. "Weighting Objectives," *Introduction to Operations Research.* New York: John Wiley and Sons, Inc., 1957, pp. 136-154.

   In Chapter 6, a method is presented for estimating the relative importance of objectives. Initially, the authors assume that judgments are made by one evaluator, but this assumption is relaxed in a later discussion of group values. Their technique consists of a "systematic check on relative judgments by a process of successive comparisons." An easy-to-follow outline both for a small and a large number of objectives is provided along with two illustrative examples for further understanding.

3. Dalkey, N. "Analyses from a Group Opinion Study," *Futures, 1,* December, 1969, pp. 541-551.

The author conducted various experiments in the use of a Delphi questionnaire. He experimented with the idea that point estimates were less accurate than interval estimates. He tested various hypotheses, including learning as a function of feedback, time as related to accuracy of response, and overall accuracy as a function of confident self-groups. Furthermore, the author concluded that even though the Delphi method has dealt only with factual judgments, it may be applicable to the weighting of value judgments (institutional objectives). If value judgments are indeed "correct," tests of individual stability, group convergence, and group reliability are needed.

4. Helmer, Olaf. "Convergence of Expert Consensus through Feedback." Santa Monica, Calif.: Rand Corporation, September, 1964.

   This is one of the earliest reports in the literature on an application of the Delphi method. An effort is made to explore some assumptions implicit in the use of this method.

5. Rescher, Nicholas. "Delphi and Values." Santa Monica, Calif.: Rand Corporation, September, 1969.

   The author's primary aim is to provide a discussion of theoretical background considerations related to the application of the Delphi method. Seven aspects are considered on pages 16 and 17. Among these are operative values, value criteriology, divergences of group value posture, value consensus, and third party evaluation of conflicts of interest.

6. Stimson, David H. "Utility Measurement in Public Health Decision Making," *Management Science, 16,* October, 1969, pp. B-17 to B-30.

   "The Churchman-Ackoff approximate measure of value method was used successfully to measure the utilities of objectives of

decision makers in a large public health agency. The utilities thus obtained formed part of a model of a resource allocation problem faced by the agency in its role as allocator of a federal grant. A comparison of the normative solution derived from the model with the solution already decided upon by the agency tended to support the hypothesis that the members of the agency chose among alternatives as if they were maximizing expected utility." (Author)

7. Uhl, Norman P. *Encouraging Convergence of Opinion, Through the Use of the Delphi Technique, in the Process of Identifying an Institution's Goals.* Durham, N.C.: Educational Testing Service, Southeastern Office, February, 1971.

   The major objectives of this study were: (1) to evaluate whether the Delphi technique produces opinion convergence among different on-campus and off-campus groups with regard to an institution's goals; (2) to provide the documentation necessary to replicate the study in other colleges or universities; and (3) to evaluate how well the preliminary form of the Institutional Goals Inventory can be used to assess an institution's goals.

SECTION ONE

UNIT 3

PROGRAM STRUCTURE

This unit:

1. Defines and identifies the function of program structure in school district planning.

2. Gives guidelines on how to develop a program structure.

3. Illustrates how program structure can be helpful in district planning and budgeting.

INTRODUCTION

As mentioned in Unit 1, planning objectives are helpful in the classification of ongoing school district activities into specific planning areas. Your planning objectives may relate to a single program, such as mathematics, or to an array of programs in your school district, such as the humanities.

A "program" is a set of related activities characterized by subject matter, grade level, age, level of student proficiency, or any combination of these. An "activity" is an operationai task designed to contribute to the accomplishment of a planning objective in a given program.

A "program structure" is generally represented by a chart which relates two basic elements: planning objectives and specific programs designed to accomplish those objectives. The meshing of these two elements leads to "activities." An activity should correspond to one and only one planning objective and program. An activity or group of activities which operationalizes a planning objective for a specific program is called an *activity module.*

In Example 1, on the next page, the relationship among programs, planning objectives, and activity modules is illustrated. Mathematics planning objectives are indicated in the left-hand column. The programs, which are categorized in this instance by grade level, are listed across the top of the table. Each block in the table is an *activity module* in which specific classroom activities must be defined.

ACTIVITIES WITHIN A PROGRAM STRUCTURE

There are classroom activities related to each planning objective within each program. We could, for instance, discuss the activity module of the Kindergarten (program)—Applications of mathematics to practical situations (planning objective)—in terms of what a Kindergarten teacher does to help children cope with practical mathematical situations in their homes. In theory, each activity should be contained within a single *activity module;* in practice, however, this is very seldom the case.

EXAMPLE 1

PROGRAM STRUCTURE BY GRADE LEVEL

Mathematics Planning Objective \ Grade Level	K	1	2	3	4	5	6	7	8	9	10	11	12
A. Students attain skill in computing and carrying out algorithms.													
B. . . .													
C. . . .													
D. Students develop the ability to use problem-solving techniques.	AM												
E. . . .													
F. . . .													
G. Students form good study and work habits in mathematics													

Note: "AM" designates an "Activity Module." In this case, the AM could be the identification of various coins—nickel, dime, quarter—and the relative value of each.

For example: A biology planning group specified the following series of experiments as one of the classroom activities for the following planning objective:

Students acquire skills in use of scientific method.

Develop and execute a series of experiments relating to the regenerative properties of flatworms. Be sure to test the following properties:

1. Condition flatworms; cut them up; see if the regenerated organisms have retained the conditioning.

2. Cut flatworms into various-sized sections to determine if size is a critical aspect in regeneration.

3. Cut flatworms to determine if any particular part of the anatomy is critical to regeneration.

Although this activity would clearly relate to *skills in the use of the scientific method,* it would also apply to other planning objectives, such as *group interaction.* The information acquired would also contribute to a *basic knowledge of science.*

Thus, *an activity may actually contribute to more than one planning objective within a given program.* Similarly, *it is possible for an activity to contribute to more than one program.* For example, different levels of comprehension are possible in connection with experiments with magnets, so the same principles may be demonstrated to different age groups in different ways. *Care should be taken that no planning objectives or programs are neglected by omitting some appropriate activities simply because they were included elsewhere.*

The program structures presented on the following pages are just a few examples to assist you to format your thinking. Obviously, many other program structures are possible. The program structure used should reflect the unique needs of the district.

When a school district decides to develop its program structures using certain categories, understandable and educationally defensible reasons are required to explain why each particular program structure is useful.

A program structure should be developed in a manner that reflects how programs currently contribute to planning objectives. For example, a certain school district decided to develop a reading program structure grouping grade levels as follows: Kindergarten-Grade 2, Grade 3-Grade 5, Grade 6-Grade 8, and Grade 9-Grade 12. Possible reasons for grouping the Kindergarten, Grade 1, and Grade 2 together could be: (1) the first-grade teachers thought that it was important to influence the Kindergarten teacher's approach to reading readiness and that a jointly-considered curriculum would help improve the teaching curriculum for both Kindergarten and first grade; (2) all teachers in the Kindergarten-Grade 2 category agreed that some basic reading problems could be solved only through joint discussions; and (3) the category naturally terminated with Grade 2 due to the existence of a transition reading room which was developed for those children who needed additional help at the end of Grade 2. Similar reasons could be set forth to explain the other grade level groupings involved.

If you wish to see examples of some alternative program structures, continue reading; if not, turn to page 81.

EXAMPLE 2

PROGRAM STRUCTURE BY COMBINED GRADE LEVEL WITHIN ONE SUBJECT AREA

Combined Grade Level / Literature Planning Objective	Level I	Level II	. . .	Level IV
A. Students attain skill in outlining plot details.				
B. . . .				
C. Students develop the ability to discern and sketch characters.	AM			
D. . . .				
E. Students acquire an appreciation of literature.				
F. . . .				
. . .				

The letters A, B, C, D, E, F . . ., in the left-hand column of this table represent literature planning objectives. The programs, which are categorized by combined grade levels, are indicated across the top of the table.

EXAMPLE 3

PROGRAM STRUCTURE BY AGE RANGES

Humanities Planning Objective \ Age Range	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19
A. Students develop basic skills and work habits in the disciplines of the liberal arts.								
B. . . .								
C. Students gain an understanding of concepts and structures in the liberal arts.	AM							
D. . . .								
E. . . .								
F. Students learn problem-solving techniques.								
. . .								

As in Example 2, the letters A, B, C, D, E, F, . . ., in the left-hand column of this table represent humanities planning objectives. The programs, which are categorized by age ranges, are indicated across the top of the table.

GROUP EXERCISE 1

Develop a program structure for your curriculum area using the planning objectives previously developed by your group. The program categories that you use can be based on grade levels, age ranges, performance groupings, or other criteria. Specify a few activities which would be included in the activity modules (AM) for two or three planning objectives. This exercise will assist your group in understanding the relationships between classroom activities and planning objectives.

List and discuss the reasons for deciding upon your program structure.

There are other ways of using program structure in ongoing school operations. Program structure, for example, can be utilized at the district level to determine and construct the annual budget. For information on how to use program structure to do district level budgeting, continue reading; if you are not interested in this application of program structure, turn to page 88.

PROGRAM STRUCTURE AND BUDGETING

Budget allocation always involves important decisions. Conventional school budgeting usually requires (1) a record of expenditures for one or two previous years, (2) submission of a request for the next year, and (3) notations regarding any additional amounts requested. The most important concern of a conventional budget is the accuracy of estimates for line-items such as administration, instruction, pupil personnel services, health, food services, etc.

Let us look at an example of a conventional expenditure budget:

Account Number	Category	Cost	Percent of Total Current Expense
100	Administration	$	%
200	Instruction	$	%
300	Pupil Personnel Services	$	%
400	Health	$	%
500	Food Services	$	%
600	Transportation	$	%
700	Operation and Maintenance	$	%
800	Community Services	$	%
900	Fixed Charges	$	%
1,000	Capital Outlay	$	%
		Total $	100%

When we look at the above budget, what kind of information do we see? We are informed of the expenditure for each line-item and total expenditures, but there is no way the intended educational impact can be determined by simply looking at this line-item budget. Apparently, it has been taken for granted that the expenditure of money for a particular line-item will produce certain results. Whether the results are goal-achieving and whether the results will affect students, either positively or negatively, are not taken into consideration; therefore, there is an information gap between the inputs (the resources) and the outputs (student performance) of the educational system.

The problem becomes more serious as the resources available for schools become more limited. A more informative budget document—that relates desired goals to available resources—is needed. Program structuring plays a role in closing the budget information gap.

In order to demonstrate how a program structure might enable administrators to make better decisions on output-oriented budget allocation, see the following two examples of program budgets (Example 4 and Example 5).

EXAMPLE 4

PROGRAM BUDGET FOR AN ELEMENTARY MATHEMATICS CURRICULUM

Line-Item / Planning Objective	Staff Salaries	Textbook Purchase	Equipment Purchase	Instructional Supplies	A.V. Supplies	Operations & Maintenance	Total
A. Students obtain skill in computing and carrying out algorithms.							XXX
B. Students gain an understanding of mathematics concepts and structures.							XXX
C. Students develop the ability to apply mathematics to practical situations.							XXX
D. Students develop the ability to use problem-solving techniques.							XXX
E. Students acquire an appreciation of mathematics.							XXX
F. Students form good study and work habits in mathematics.							XXX
Total	XXX	XXX	XXX	XXX	XXX	XXX	XXX

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EXAMPLE 5

PROGRAM BUDGET FOR THE CURRICULA OF AN ELEMENTARY SCHOOL

Subject Area	Line-Item / Planning Objective	Staff Salaries	Textbook Purchase	Equipment Purchase	Instructional Supplies	A.V. Supplies	Operations & Maintenance	Total
Mathematics	A. Students obtain basic skills in *the subject.*							X
	B. Students gain an understanding of concepts and structures in *the subject.*							X
	C. Students develop the ability to apply *the subject's* principles to practical situations.							X
	D. Students develop the ability to use problem-solving techniques.							X
	E. Students acquire an appreciation of *the subject.*							X
	F. Students form good study and work habits in *the subject.*							X
Reading	A.							X
	B.							X
	C.							X
Science	A.							X
	B.							X
	C.							X
Language	A.							X
	B.							X
	C.							X
Social Studies	A.							X
	B.							X
	C.							X
Music & Arts	A.							X
	B.							X
	C.							X
Physical Education	A.							X
	B.							X
	C.							X
Total		XX	XX	XX	XX	XX	XX	XXXX

SUMMARY OF UNIT 3

A program structure provides a basis for describing what the district does to meet its planning objectives. It also provides a format for budgeting. Examples of program structures were presented, and activity modules were discussed. Assessing performance in terms of district planning objectives will be discussed in Unit 4, "Performance Indicators."

SUGGESTED SUPPLEMENTARY READINGS

(Unit 3: Program Structure)

1. Alioto, Robert F. and J.A. Jungherr. *Operational PPBS for Education: A Practical Approach to Effective Decision Making.* New York: Harper & Row, Publishers, Inc., 1971.

2. Brown, Oliver S. and William X. Zeidler. *Planning, Programming, Budgeting Guide 1970-1971.* The School District of Philadelphia: Philadelphia, Penna.

3. *Clark County School District 1970-71 Annual Budget Document.* Clark County School District: Las Vegas, Nevada, April, 1970.

4. Curtis, William H. *Educational Resources Management System.* Research Corporation of the Association of School Business Officials, 1971.

5. Knezevich, Stephen J. (ed.) *Administrative Technology and the School Executive.* Submitted by the AASA Commission on Administrative Technology, American Association of School Administrators, Washington, D.C., 1969.

6. *Planning, Programming, Budgeting System Manual for State of California School Districts.* California State Department of Education, 1970.

7. *Procedure for Preparation of the 1971-1972 Educational Program.* Pearl River School District: Pearl River, New York, 1970.

SECTION ONE

UNIT 4

PERFORMANCE INDICATORS

This unit:

1. Identifies the need for, and function of, performance indicators in school district planning.

2. Gives examples of performance indicators.

3. Provides exercises for constructing performance indicators.

INTRODUCTION

Performance indicators measure the extent to which planning objectives have been attained. They are used to sample students' achievements and to measure a program's contribution and progress toward its planning objectives. Although the indicators are given to individual students and have the appearance of tests, they are not intended to grade or evaluate the child or the teacher. Rather, they are used as indicators of the *total performance of the school* and are meant to be used by school personnel to identify areas in which educational improvement is needed. The nature and scope of performance indicators may vary. A performance indicator may contain items which measure performance on:

- one planning objective and one program,
- several planning objectives and one program,
- one planning objective and several programs, or
- several planning objectives and several programs.

(Refer to the discussion of "program structure" in Unit 3.) These combinations of planning objectives and programs represent the different possible scopes of performance indicators. Basically, a performance indicator reveals the strengths and weaknesses of a particular program and helps teachers and administrators make improvements.

Performance indicators may require student responses (oral responses, written responses, or physical activities), teacher responses, independent observer responses, or counts and measurements; thus, they vary in nature.

Performance indicators are not universally applicable. One district may choose to use scores on the Iowa Test of Basic Skills to assess the extent to which the present arithmetic curriculum is meeting its students' needs. Another district may elect to use results of a test developed by its own people (a "city test") to measure the effectiveness of its arithmetic curriculum. One teacher in this school district may decide to use the city test results together with comments made by her pupils about their arithmetic class, while another teacher may want to assess how well she has met the needs of high school pupils by determining their ability to complete an income tax form. The point is that different indicators of performance may be used to evaluate program effectiveness in different ways. A strict determination of the

value of a particular performance indicator is meaningless, since the performance indicators developed by a district are unique to that district. To this extent, planning and decision-making processes are as individualized as people.

Three steps are required for a group to develop items for a performance indicator:

A. Decide which planning objective(s) and which program(s) to assess.

B. Determine the scope of the performance indicator to be constructed.

C. Construct "items" that allow student achievement to be measured in terms of each program and each planning objective. Items from other tests can be modified and utilized as input for the construction of performance indicator items. Supplementary Readings 1, 3, 4, 5, and 6 will be helpful when you begin constructing performance indicator items.

Example 1, on the following page, shows the relationships among planning objectives, programs, and performance indicator items. If at all possible, each item relates to one, and only one, program and planning objective.

Performance indicators can be constructed in various ways for assessing student performance. In Example 1, oral responses (for French) were assessed. The statements in Example 2 are taken from different performance indicators to show a variety of items requiring written student responses, oral student responses, physical student demonstrations, and observations of students recorded by a trained observer.

EXAMPLE 1

RELATIONSHIP OF PERFORMANCE INDICATOR ITEMS TO PLANNING OBJECTIVES AND PROGRAMS

Planning Objective	Program	Performance Indicator Items
Students are able to apply basic skills to practical situations.	Beginning French (conversation).	1. Orally count from 1 to 20 in French without mistakes. 2. Four out of five times, correctly tell the time in French. 3. Answer "How old are you?" in French without mistakes. 4. Say the following in French: "I have studied French for four months." 5. Ask "How do I get to the train station?" in proper French. . . .

EXAMPLE 2

SAMPLES OF VARIOUS ITEM-TYPES FOR PERFORMANCE INDICATORS

1. Point out at least three metaphors used in Robert Frost's "Stopping by Woods on a Snowy Evening."

2. Find the solution set of x:
   $4(x + 1) = 2x(x + 3)$

3. Point to the following organs of a dissected rat:
   a. Lung
   b. Stomach
   c. Diaphragm
   d. Intestines
   e. Kidney

4. List five characteristics which distinguish a monarchy from a republic.

5. In your vocal range, sing the melody that the teacher plays on the piano.

6. Shoot the basketball into the basket at least two out of five times from the foul line.

7. List the names of the science books which you chose to read outside of school during the past year.

8. Show a film on a 16mm movie projector.

9. Within three weeks construct a kitchen utensil which the shop instructor rates as being of satisfactory quality.

EXERCISE 1

I. Read carefully the performance indicator items listed in Example 2 (page 96) and the following four planning objectives. Then indicate in the spaces provided which of the items could be used appropriately for each of the four planning objectives provided below. There is only one correct answer for each objective indicated.

..... 1. Students will have an appreciation of science at all grade levels.

..... 2. Students will be able to recognize literary constructions at the senior high level.

..... 3. Students will demonstrate competency with communications media at the senior high level.

..... 4. Students will be able to differentiate forms of social structures at the twelfth-grade level.

II. Answer the following questions:

1. How many items do you think should be included in a performance indicator?

2. What is the basic difference between a "test" and a "performance indicator?"

ANSWERS TO EXERCISE 1

I. 1. *Item 7.* The more science books a student reads outside of school, the more he shows his interest in science and his appreciation of scientific achievement.

2. *Item 1.* Being able to pick out metaphors from a poem indicates a student's ability to recognize literary constructions.

3. *Item 8.* Mass communications media include newspapers, film, radio, and television. Ability to run a film projector indicates competency in one mass medium.

4. *Item 4.* Social structures include political and economic structures. Monarchies and republics represent two different political structures.

II. 1. Any number will be fine as long as those who construct the performance indicator feel it will evaluate adequately the programs and planning objectives they want to assess.

2. A performance indicator and a test differ from each other in their functions. A performance indicator assesses the *teacher/student/curriculum* effort in achieving the planning objectives and it is meaningful only in a planning program, while a test attempts to measure how well *individual students* are progressing in classroom learning. The scores that students get from a test are recorded as their grades, but the scores that students get from a performance indicator help classroom teachers identify areas of strength and weakness in the performance of the whole class and the effectiveness of the curriculum, and provide teachers with data on which to base recommendations for change made to their principals.

The answers given on the previous page showed that each performance indicator item in the example measured only one planning objective. For convenience in data analysis, we suggest that when constructing performance indicators you select items which clearly assess only one planning objective.

Now look at the following example of a complete performance indicator:

A PERFORMANCE INDICATOR
FOR THIRD-GRADE READING (PROGRAM)
BASIC SKILLS (PLANNING OBJECTIVE)

I. Ask the students to match the words in the first column with those that rhyme in the second column.

.....	(1)	fife	(a)	wheels
.....	(2)	heels	(b)	home
.....	(3)	ring	(c)	wife
.....	(4)	comb	(d)	thing

II. Ask the students to identify the word to be used in each of the following sentences.

1. heals, heels

   (a) The ..... of my boots are worn out.
   (b) The doctor ..... the sick baby.

2. toes, tows

(a) The fisherman ..... a boat to the beach.
(b) This pair of shoes hurts my ..... .

3. parrot, carrot

(a) A ..... can speak and sing.
(b) A ..... is something to eat.

4. painted, fainted

(a) Father ..... the fence in our backyard this afternoon.
(b) A person became sick and ..... .

III. Ask the students to check the word which means the same as the italicized portion of each of the following sentences:

1. Please *keep an eye* on the stove.
   (a) listen
   (b) watch
   (c) ready
2. He *went on foot*.
   (a) walked
   (b) watched
   (c) listened
3. Please *lend an ear*.
   (a) walk
   (b) talk
   (c) listen
4. The teacher *has her hands full*.
   (a) is busy
   (b) is ready for action

IV. Ask the students to underline the word endings, then circle the root words in the following sets of words.

1.	looks	looking	looked
2.	worker	worked	working
3.	washes	washing	washed

EXERCISE 2*

Given the following program, construct a performance indicator including at least three items for measuring each planning objective. If you are not interested in this program, pick another subject area and construct a performance indicator based on the format below.

PROGRAM: NINTH-GRADE BIOLOGY

Planning Objective	*Performance Indicator Items*
A. Students should be acquainted with scientific terminology.	A1
	A2
	A3
B. Students should know how to utilize their natural environment.	B1
	B2
	B3
C. Students should develop an appreciation of scientific achievements.	C1
	C2
	C3
	.
	.
	.

*If you are working in a group, information-sharing is highly recommended here.

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For more practice in developing indicator items from specific planning objectives, repeat this exercise by developing performance indicator items for the program and planning objectives supplied on page 105. If you do *not* feel more practice is needed, turn to page 107 and continue reading.

PROGRAM: FIFTH-GRADE READING

Planning Objective	*Performance Indicator Items*
A. The child should have a positive attitude toward himself and reading.	A1 A2
B. The child should acquire skills and methods useful in word attack.	B1 B2
C. The child should acquire the vocabulary and critical skills necessary for comprehension.	C1 C2
D. The child should acquire communication skills—for both oral and written expression of facts, ideas, and feelings.	D1 D2
E. The child should develop reference and investigative study skills.	E1 E2 . . .

SUMMARY OF UNIT 4

A performance indicator is a basis upon which performance as related to planning objectives may be assessed. You may select a standardized instrument, modify one by adding or deleting some items, or construct your own performance indicator. Examples of how to construct performance indicators have been given in this unit. They should serve as guidelines for the construction of performance indicators for your own district.

SUGGESTED SUPPLEMENTARY READINGS

(Unit 4: Performance Indicators)

1. Alkin, Marvin C. "Behavioral Objective Specifications in Evaluation: Relevant or Irrelevant?" *Western Regional Conference on Testing Problems.* Princeton, N.J.: Educational Testing Service, May, 1969, pp. 1-13.

   The purpose of this paper is to determine when behavioral objectives are helpful in the evaluation process. The author defines "evaluation" and lists its five stages: systems assessment (determination of needs and objectives), planning (selection of a program), program implementation (assessment of actual versus intended effects), program improvement (presentation of interim feedback to the decision-maker), and program certification (presentation of final feedback to the decision-maker). Behavioral objectives are useful during the first, fourth, and fifth stages.

2. Friedly, Philip H. *et al.* "Benefit-Cost Applications in Urban Renewal: A Feasibility Study." Clearinghouse for Federal Scientific and Technical Information, Contract No. 182969, Bethesda, Md.: Resource Management Corporation, August, 1968.

   This item refers to Chapter 6 of this report, "Evaluating the Impacts of Renewal Activities." A matrix is developed showing the interactions among 11 urban renewal objectives and 11 welfare indicators. Measuring these 11 welfare indicators would yield information regarding the attainment of the specified objectives. Nevertheless, in their discussion of each of the welfare indicators, the authors point out that the criteria are not necessarily commensurable. Empirical testing must now provide information about the usefulness and administrative costs of the respective indicators.

3. Kurland, Norman D. "Developing Indicators of Educational Performance," *Educational Technology,* January, 1967, pp. 1-11.

The author identifies some of the fundamental aspects of educational performance indicators. First, he lists some reasons why educational performance has been difficult to assess, then he proceeds to specify the attributes of good performance measures. In addition, he delves into the problems of data collection, input factor measurement, process factor quantification, and output factor adequacy. In the latter regard, he gives special mention to Ralph Tyler's national assessment project. Finally, he suggests that an adaptation of econometric models may have some applicability in developing educational performance indicators.

4. Mager, Robert F. *Preparing Instructional Objectives.* Palo Alto, Calif.: Fearon Publishers, Inc., 1962.

This book is also referenced in Unit 1.

5. *Objective-Based Test Collections.* Los Angeles, Calif.: Instructional Objectives Exchange, 1973.

6. *Radnor School District Mathematics, Social Studies, Reading Performance Indicators.* Radnor, Penna.: Radnor Township Schools, 1970.

7. Temkin, Sanford and Margaret J. Jones. Ways for School Districts to Use Effectiveness and Cost Information in Planning. In *Planning Urban Education*, Dennis L. Roberts (ed.) Englewood Cliffs, N.J.: Educational Technology Publications, 1972.

SECTION ONE

UNIT 5

USE OF PERFORMANCE INDICATORS

This unit:

Provides a discussion of how the data collected from performance indicators can be used to improve classroom and school district effectiveness in achieving planning objectives.

INTRODUCTION

A performance indicator is used to assess the degree to which school district planning objectives have been accomplished. The data collected from a performance indicator, namely, student scores, highlight strengths and weaknesses in achieving planning objectives both *at the classroom level* and *at the building and district levels.* This information is useful for making decisions related to future planning. Based on the assumption that teachers' abilities, student progress, and curriculum effect cannot be assessed separately, individual scores are of no particular interest to us. We are interested in composite scores for groups of students. Each teacher will prepare a class list for data processing, assigning each student to one of three groups.

How do performance indicator results help us? We recommend that the results be reviewed as they relate to each planning objective within a specific program, e.g., a planning objective for fifth-grade mathematics. The following table illustrates one way to look at the information that performance indicators have yielded.

TABLE 1

CLASS PERCENTAGES VS. DISTRICT PERCENTAGES FOR ONE PLANNING OBJECTIVE

Miss Marilyn Scott:	Fifth-Grade Mathematics Performance Indicator
School:	Red Cedar Elementary School
District:	Lancaster County
Planning Objective:	Students gain an understanding of mathematical concepts and structures.*
Number of items for this planning objective:	7

Group of Students**	Class (Percentage of Items Answered Correctly)	District (Percentage of Items Answered Correctly)
Upper Third	71%	83%
Middle Third	43%	48%
Lower Third	26%	34%

*This is one of several planning objectives measured by this indicator.

**Students in a class may be divided into three ability/achievement groups determined on the basis of past performance in the classroom, homework, and the observations of the teacher. This gives the teacher information with which to answer questions such as: "Are all students advancing at similar rates?" or "Is there a wide spread of abilities in my classroom that must be considered?"

The class has been divided into three groups—Upper Third, Middle Third, and Lower Third. The number of indicator items answered correctly by the students in each group has been converted to percentages (in relation to that group in the class and in the district); e.g., in the Upper Third group in the class, the students answered 71 percent of the items correctly, and in the Upper Third group in the district, the students answered 83 percent of the items correctly.

EXERCISE 1

1. Review the data presented in Table 1. How did the scores for this class compare with other scores in the district? Did the two sets of scores have a similar distribution?

2. List some factors that might explain the difference between teacher expectations and actual school district results.

3. How may the data help the teacher?

ANSWERS TO EXERCISE 1

1. Comparison of class to district.

   The class and the school district have similar distributions, but the class is consistently lower than the district average.

   This information, combined with the teacher's own expectations, should enable the teacher to assess how successfully the planning objective is being achieved.

2. Characteristics of the class that influence teacher expectations.

   a. Past performance of the class.

   b. Amount of material covered before the indicator is administered.

   c. Current and past performance of other teachers in the building relative to district averages.

   d. Performance at other schools with similar characteristics.

   e. Any prolonged inability to teach (construction, riots, teacher strikes) which did not affect other schools in the district or *only* affected other schools.

3. How do the data help the teacher?

   The data make the teacher aware of the success of his class relative to the school district for specific objectives, and give the teacher an opportunity to review what he is trying to accomplish.

   Note: The data do *not* indicate which students need help. The data do *not* indicate that the teacher should be sure to teach fractions (an item on the performance indicator), but that possibly more attention should be devoted to mathematical concepts and structures (a planning objective).

Administrators and principals also get involved in reviewing the results of the performance indicators at the summary level. They may review, for example, a summary of all fifth graders, or all mathematics programs. Performance indicators should *not* be used to compare teachers, but to aid in improving student performance in the future.

The results of the performance indicators are not for public use. They are aimed at improving the school. At the building level, a principal should get a summary derived from the averages of the students in all classes in his building. Table 2 is an example of a summary, prepared for a principal, of the results from all fifth graders on a mathematics performance indicator.

TABLE 2

BUILDING DATA VS. DISTRICT DATA FOR ONE PLANNING OBJECTIVE

The Fifth-Grade Mathematics Performance Indicator		
School:	Red Cedar Elementary School	
District:	Lancaster County	
Planning Objective:	Students gain an understanding of mathematics concepts and structures.*	
Number of items for this planning objective:	7	
Group of Students	Building Percentage	District Percentage
Upper Third	86%	83%
Middle Third	59%	46%
Lower Third	36%	34%

*This is one of several planning objectives measured by this indicator.

A review of Table 2 indicates that the Red Cedar Elementary School has been more successful in accomplishing this particular planning objective than the average class in Lancaster County School District; the difference, however, is probably not significant.

Tables 1 and 2 presented data for *one* planning objective; however, tables can be constructed to compare results in terms of two or more planning objectives. The following is an example of this kind of information.

TABLE 3

CLASS DATA VS. DISTRICT DATA FOR MORE THAN ONE PLANNING OBJECTIVE

Miss Marilyn Scott:	Fifth-Grade Mathematics Performance Indicator (4 Planning Objectives and 20 Indicator Items)
School:	Red Cedar Elementary School
District:	Lancaster County

Planning Objective	Group of Students	Class Percentage	District Percentage
A. Students gain an understanding of mathematical concepts and structures. (7 items*)	Upper Third	71%	83%
	Middle Third	43%	46%
	Lower Third	26%	34%
B. Students obtain skill in computing and carrying out algorithms. (3 items*)	Upper Third	78%	80%
	Middle Third	45%	50%
	Lower Third	25%	20%
C. Students develop the ability to apply mathematics to practical situations. (5 items*)	Upper Third	90%	88%
	Middle Third	55%	65%
	Lower Third	35%	32%
D. Students develop the ability to use problem-solving techniques. (5 items*)	Upper Third	95%	93%
	Middle Third	70%	68%
	Lower Third	50%	52%

*The numbers in parentheses indicate the number of items used to measure each planning objective.

A principal may have a similar table to summarize the results from his school and from the school district as a whole. Actually, there are endless ways to review the data. We have presented those which we believe to be the simplest and most informative in format. For some alternative ways to review the data, continue reading.

ALTERNATIVE WAYS TO CONSIDER THE DATA

A. On the Basis of Teacher Expectations

1. As an additional aid in assessing class success, a teacher might want to establish class expectations before a performance indicator is given to students. The simplest way to formulate expectations is to set an upper and lower boundary. These boundaries would be established on the basis of a review of the performance indicator items as well as a review of student abilities. For example, if there are seven items for a planning objective, the teacher, after reviewing the performance indicator, might expect his class to score between 5.0 and 2.0. If the students get an average score of 5.0 or higher, the planning objective has been achieved better than expected. If the average score is 2.0 or lower, the planning objective has not been achieved as well as expected.

2. If a performance indicator is developed for more than one grade level, for example, Grades 1, 2, and 3, different expectations could be established for each grade level.

B. Analysis by Item

Analysis by item helps determine the degree of difficulty of each item. Such analysis of the data helps determine the effectiveness of various items in measuring performance for the designated planning objective, and also serves as the basis for later indicator revisions.

Table 4 lists seven items. The students are divided into three ability/achievement groups. The figures in each space reflect the number correct for that particular item and group of students. Each entry may range from 0 to the total number of students in each group, which in this instance is 10. The column at the far right indicates the total number of times a particular item was answered correctly by students in all three groups. This figure provides an indication of the difficulty of each specific item. The higher the number correct, the easier the item is; the lower the number correct, the more difficult the item. Generally items of medium difficulty give the most information and the best discrimination among students.

TABLE 4

*ANALYSIS BY ITEM FOR ONE PLANNING OBJECTIVE**

Miss Ruth Jackson:	Second-Grade Mathematics Performance Indicator
School:	Red Cedar Elementary School
District:	Lancaster County
Planning Objective:	Understand mathematical concepts and structures.
Number of items for this planning objective:	7

Item No.	Lower (10 Students)	Middle (10 Students)	Upper (10 Students)	Difficulty (L + M + U)
1	10	10	10	30
2	2	4	6	12
3	1	3	5	9
4	0	1	1	2
5	0	5	8	13
6	1	3	5	9
7	3	1	2	6

*The figures in this table indicate how many students in each group gave correct answers on each of the items listed.

EXERCISE 2

Review Table 4 on page 120 and answer the following questions for each item listed.

(a) Did the students do well on the item?

(b) Would you want to use this item again?

(c) Is this item well constructed?

Item 1.

Item 2.

Item 4.

Item 7.

ANSWERS TO EXERCISE 2

Item 1. Since every student got this item correct, either it is too easy or it has been well taught in this particular class. If students consistently get this item correct on both the pre- and post-indicators across several grade levels, this item probably should be replaced.

Item 2. As indicated by the number "12" in the extreme right column, this item is of medium difficulty. Almost half of the class got this correct. Fewer students from the Lower Third group got it correct, while more from the Upper Third group got it correct. This is a good item.

Item 4. Only two students got the correct answer. This is too difficult an item. Either the material being tested in this item has not been covered in this class or the wording of the item is confusing. It should be reviewed before being used again.

Item 7. This is another poor item because only a few students got it right, and most were from the lower group. It is a very hard item and most students guessed at the answer. As it happened, three students from the lower group guessed correctly. A review of this item is needed before it is used again.

EXERCISE 3

The following is a table of performance indicator results for an 11th-grade mathematics class of nine students. Each student, represented by his first initial, has been grouped into one of three categories: Upper Third, Middle Third, Lower Third. In the indicator, two planning objectives were assessed by 10 items. Planning objective A was assessed by items 1, 3, 7, and 9; and planning objective B was assessed by items 2, 4, 5, 6, 8, and 10. The "✓" marks designate correct responses.

Grouping / Student / Item	Upper Third			Middle Third			Lower Third		
	R	C	V	T	J	B	S	M	D
1 (A)	✓	✓		✓		✓	✓		
2(B)	✓		✓	✓				✓	✓
3 (A)	✓	✓	✓		✓	✓			
4 (B)	✓	✓	✓	✓	✓	✓	✓		✓
5 (B)	✓	✓	✓		✓	✓		✓	
6 (B)		✓		✓		✓			✓
7 (A)	✓	✓	✓						
8 (B)	✓	✓	✓	✓	✓			✓	✓
9 (A)	✓	✓	✓	✓		✓			
10 (B)	✓								

1. Complete the following table for planning objective A (Items 1, 3, 7, and 9).

Group of Students	Average Number of Correct Responses per Pupil	Percentage of Correct Responses for Group
Upper Third	(a)	(d)
Middle Third	(b)	(e)
Lower Third	(c)	(f)

2. Complete the following table for planning objective B (Items 2, 4, 5, 6, 8, and 10).

Group of Students	Average Number of Correct Responses per Pupil	Percentage of Correct Responses for Group
Upper Third	(g)	(j)
Middle Third	(h)	(k)
Lower Third	(i)	(l)

Check your answers with the correct answers which follow.

ANSWERS TO EXERCISE 3

$$\frac{\text{Number correct answers}}{\text{Number in group}} = \frac{\text{Number correct answers}}{\text{Number possible answers}} \times 100 =$$

1.	(a)	3.7	(d)	91.7%
	(b)	2.0	(e)	50.0%
	(c)	0.3	(f)	8.3%
2.	(g)	4.3	(j)	72.2%
	(h)	3.7	(k)	61.1%
	(i)	2.7	(l)	44.4%

EXERCISE 4*

This is an optional exercise. It provides an opportunity to evaluate your abilities in working with class and district results. If you decide not to do this exercise, turn to page 133.

The following is a table summarizing district results on a specific performance indicator. Specific questions related to these data will be found on the next page.

SCHOOL DISTRICT AVERAGE PERCENTAGES FOR HIGH SCHOOL MATHEMATICS
(The same performance indicator was used across all three grade levels.)

Planning Objective	Grade / Group of Students	10	11	12
A. Students develop the ability to apply mathematics to practical situations (4 items).	Upper Third	40%	59%	85%
	Middle Third	35%	40%	49%
	Lower Third	31%	39%	40%
B. Students develop the ability to use problem-solving techniques (6 items).	Upper Third	88%	85%	90%
	Middle Third	65%	72%	85%
	Lower Third	39%	51%	65%

*If you are working in a group situation, information-sharing is highly recommended here.

1. Discuss the class results indicated in Exercise 3 on page 123 and the district data on page 127. Assuming that the same performance indicator was used by the class, is that class performing as well as the district? Write an explanation of your group's decision. For a hint on this, continue reading.

2. Write a summary statement on how successfully each of the two planning objectives was achieved across the three grade levels (10, 11, and 12) in this district. For a hint on this, continue reading.

Hint for first question:

Exercise 3 provided data only for *one 11th-grade* mathematics class. Therefore, to make the comparison fair, you should restrict your attention to the district data relevant to 11th-grade mathematics. All relevant data are presented in the table below.

Planning Objective	Group of Students	Class Data	District Data
A. Practical applications	Upper Third	91.7%	59%
	Middle Third	50.0%	40%
	Lower Third	8.3%	39%
B. Problem-solving	Upper Third	72.2%	85%
	Middle Third	61.1%	72%
	Lower Third	44.4%	51%

Hint for second question:

Only district data are needed.

To check the performance of your group on this exercise, see the answers which follow.

ANSWERS TO EXERCISE 4

1. You should have figured out class-district differences:

Planning Objective	Group of Students	Class	District	Class-District Difference
A. Practical Applications	Upper Third	91.7%	59%	+ 32.7%
	Middle Third	50.0%	40%	+ 10.0%
	Lower Third	8.3%	39%	- 30.7%
B. Problem-Solving	Upper Third	72.2%	85%	- 12.8%
	Middle Third	61.1%	72%	- 10.9%
	Lower Third	44.4%	51%	- 6.6%

A plus (+) indicates that the class performed better than the district as a whole; a minus (-) indicates that the class performed worse than the district as a whole. If the differences are greater than a few percentage points, they may be considered significant.

According to our comparison table above, the Upper Third and Middle Third students in that class did significantly better than their corresponding groups in the district on objective A, practical applications, whereas the Lower Third group of the class did more poorly than their corresponding groups in the district.

For objective B, problem-solving, the district overall has done a significantly better job than the class. In summary, the classroom environment helped the better students do significantly better than the district as a whole on objective A, but the same environment slighted the poorer students on both objectives, and all students on objective B.

2. For objective A, practical applications, the data showed that students have improved their ability to apply mathematics to practical situations. Although the results are not as evident as with the other two groups, the Upper Third students made substantial progress during the 12th grade.

   For objective B, problem-solving, the students evidently entered the 10th grade with a high level of proficiency (see data for the 10th grade) in mathematical problem-solving techniques. The students, particularly in the Middle Third and Lower Third groups, continued to make progress throughout the last three years of high school.

   This exercise should have given you an opportunity to analyze data in terms of both classroom and district performance, as related to specific planning objectives.

SUMMARY OF UNIT 5

The information collected from performance indicators highlights areas of strength and weakness in achieving planning objective(s). Tables and discussions have been presented showing the relationship between the information obtained from performance indicators and the effectiveness of using planning objective(s) in teaching. Other methods of using the data to assess performance also have been considered. Principals and administrators can be provided with data which enable them to observe and review class and school results. By determining to some degree the effect of individual school differences within a district, district level personnel can take into consideration those conditions or factors which may influence school scores and contribute to their differences.

SUMMARY OF SECTION ONE

Now that you have completed this Section, you should have a good grasp of the basic concepts of comprehensive planning. You have developed:

(1) planning objectives for your curriculum area;

(2) both priorities and numerical preferences for your planning objectives;

(3) a program structure; and

(4) an appreciation of the function and use of indicators of performance.

This information will provide you with a basis for Section Two, Beginning Implementation.

SECTION TWO: BEGINNING IMPLEMENTATION

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INTRODUCTION TO SECTION TWO

Section Two, Beginning Implementation, is intended primarily to help you apply the basic concepts and skills of the comprehensive planning approach covered in Section One to your curriculum area and your district.

As the title suggests, Section Two describes the first implementation cycle of a comprehensive planning effort in your district.

There are two units in this section:

Unit 1—How to Develop Your Performance Indicators.

Unit 2—How to Plan for the Implementation Year.

Unit 1 is a guide for use by the planning group in the development of performance indicators, under the supervision of the project manager. It provides suggestions and guidelines for the group to follow in developing performance indicators for their school.

Unit 2 is for the project manager and the planning group to follow in preparing to implement this planning approach during the coming school year. The information presented in Unit 2 is not related to the actual construction of performance indicators.

SECTION TWO

UNIT 1

HOW TO DEVELOP YOUR PERFORMANCE INDICATORS

This unit:

1. Suggests an organizational structure to enable your group to develop performance indicators efficiently.

2. Provides guidelines and suggestions to facilitate the development of quality-controlled performance indicators (including any necessary illustrations) and related materials.

INTRODUCTION

By the time your planning group is ready to develop performance indicators, all group members should be familiar with the basic concepts of comprehensive planning and should have acquired the associated skills (through activities connected with Section One, Basic Skills and Concepts). In all probability, your group has already developed a tentative set of planning objectives and some performance indicator items. As rough measurements of the extent to which each planning objective has been achieved, performance indicators are the planning group's most significant material contribution to the planning effort outlined in this book.

The first objective of this unit is to suggest an organizational structure for your group that will enable you to develop your performance indicators in an effective manner.

Organizational Structure

The development of a performance indicator during a two-week period (five days a week, six hours a day) involves three essential functions: management, quality control, and development. These functions are described in detail below:

I. Management

The project manager (the individual responsible for the implementation of this planning effort in your district) has primary management responsibility for the development of performance indicators. These responsibilities are detailed below:

A. Overall responsibility for the development of performance indicators.
B. Development of the Teachers' Manual. (This means that the project manager should be able to write effectively himself or have a good working relationship with another member of the planning group who writes well.)
C. Maintenance of records.

II. Quality Control

Quality control is the function of examining a product throughout the developmental process to determine whether it should become a finished product. Through quality control, user standards are estab-

lished and attempts are made to keep the production process "honest" for consumers—in this case, both the teachers and the pupils. Therefore, it is of utmost importance to appoint a quality control team* for your planning group.

This team should include teachers from across grade levels (for instance, one teacher representing Grades K-3, another 4-6, another 7-9, and perhaps a fourth for 10-12) who can work together as a group. Besides functioning with other group members as part of a development team and producing performance indicators, the quality control team members have the following additional responsibilities:

1. Overall responsibility for assuring *quality control* of the project during the two-week period when the performance indicators are being developed.
2. Assuring that each performance indicator reflects an appropriate balance between review and nonreview items. Since performance indicators are given twice during the school year (the pre-indicator is given in September and the post-indicator in early March**), attention should be given to both review items and new material. Review items give pupils an opportunity to experience some success with the pre-indicator. Their performance on the review items also should be useful in developing expectations regarding student progress during the coming year. Pupils should be given a chance in

*In cases where the district is small, the quality control team can consist of one teacher responsible for the elementary grades and another teacher responsible for the secondary grades.

***Why is the post-indicator given in early March*? Standardized tests are generally given at the end of May or in early June. Students take the standardized tests and the tests are sent away to be scored (or are scored locally). Usually, the results are returned during the summer while everybody is away. Thus, the scores cannot have immediate impact on curriculum planning for the coming fall. When post-indicators are given early in March, however, the data are returned before the close of school and teachers can get together to discuss the information and make recommendations to the principal for the coming school year. This approach will be more effective because the data are more current and thus provide a stronger impetus for change—when change is needed. If you have noted that the indicator does not cover the March-May period, you are correct. Remember, the performance indicator is *not* an achievement test; it *is* an indicator.

September (when the pre-indicator is given) to answer a few items correctly so they will not build up a negative attitude toward the indicator. By the time the post-indicator is administered in March, Upper Third students should be able to attack all of the indicator items. It is, therefore, especially important that the range of items included in the performance indicator be related to the September-March curriculum experience of pupils.

3. Checking the accuracy of performance indicator diagrams. (See pages 163 to 166.)
4. Assuring that the instructions for pupils on the performance indicator are written clearly and in language consistent with the grade-level reading abilities of the pupils.
5. Assuring that each performance indicator contains more than one review item and one new item for *each* planning objective on which the group wants to measure performance, and that an item analysis list is prepared. (See page 178.)
6. Assuring that the Teachers' Manual is sufficiently communicative, so that teachers not presently involved with the project will be able to appreciate the historical antecedents of the project as well as understand their role in the change process.

The project manager should appoint a team leader for the quality control team. The criteria for choosing a team leader should include the ability to maintain a K-12 perspective of the district, to command respect based on relatively extensive knowledge of the curriculum area, and, of course, to provide effective leadership for quality control activities.

III. Development

There are three basic methods of indicator development; (1) item selection, (2) modification of existing items, and (3) item construction.

Since teacher expertise can be utilized better in matching items to planning objectives than in actually writing items, item selection can be a very worthwhile course to follow. The items selected can either be used exactly as they are written or they can be modified to make them more appropriate for the school district involved.

If items are to be selected, the development team should collect lists of existing items for the appropriate curriculum area and grade levels from sources such as: the *IOX Objectives-Based Test Collections* from the Instructional Objectives Exchange of the Center for the Study of Evaluation (CSE) at UCLA; *CSE Hierarchical Objectives Chart; CSE Elementary School Test Evaluations;* and *CSE-RBS Test Evaluations: Tests of Higher-Order Cognitive, Affective, and Interpersonal Skills.* Other possible sources for existing items include published standardized tests as well as the tests developed by local school districts.

After lists have been prepared of items to be considered for inclusion, the planning team can select those items which most closely match their established planning objectives.

If your group decides to construct an indicator, each group member (except the project manager and the quality control team leader) should be responsible for developing at least one indicator item. (See Supplement A for sample indicator items prepared for a specific performance indicator.) Each participant's responsibilities include:

A. Working with others on the basis of a K-12 perspective, as well as on grade-level assignment(s).
B. Completing a "performance indicator diagram" for a grade-level assignment. (See the diagram format on page 165.)
C. Preparing prototype items which are specific enough to enable the illustrator to prepare any illustrations needed for the performance indicator.

On the following pages, sample documents have been provided for the project manager's use in planning the development phase of this planning effort. These documents may also be of interest to other group members; if you are *not* interested in these documents, turn to page 154 and continue reading.

PROJECT MANAGER'S CHECKLIST

		Yes	No
1.	Will funds be available to pay members of the planning group when they have finished developing the performance indicators?	....	....
2.	Will funds be available to cover the costs of reproducing the performance indicators?	....	....
3.	Has your group finished reading Section One (Basic Skills and Concepts)?	....	....
4.	Does your group have the necessary supplies, stationery, and the appropriate books or materials needed to develop the performance indicators?	....	....
5.	Have you found an illustrator to do the illustrations for your indicators?	....	....
6.	Have you prepared a feasible working agenda for your group to follow in developing the performance indicators?	....	....

If you can answer all of the above questions in the affirmative, your group is ready to continue with the task of development.

If you cannot answer the first four questions affirmatively, you are *not* ready to develop performance indicators. STOP until all of these critical preparatory considerations have been addressed.

TABLE 1

*EXAMPLE OF WORK PROGRESS CHART FOR DEVELOPING PERFORMANCE INDICATORS**

DAY 1

1. List tasks to be accomplished during the two-week period.
2. Assign specific responsibilities to group members.
3. Distribute supplies and resource materials to assist the developmental effort.
4. Clarify planning objectives.

DAYS 2 and 3

1. The quality control team leader briefs group members on item feasibility considerations for performance indicators.
2. Develop performance indicator diagrams.

DAYS 4 and 5

1. Preliminary item-feasibility audit of performance indicators (quality control).
2. The project manager starts to prepare the Teachers' Manual.

DAYS 6 and 7

1. Second item-feasibility audit of performance indicators (quality control).
2. Performance indicators typed and proofread.

DAYS 8 and 9

1. Illustrations are developed or selected.
2. Final audit of performance indicators (quality control).

DAY 10

1. Group reads Unit 2 of Section Two for information on implementation.

*This table provides an example of a feasible schedule for the development of performance indicators. This schedule may not be appropriate for your particular development effort, but it does provide a frame of reference to use in designing your own schedule. The following pages describe the various tasks involved in more detail.

A PROPOSED WORKING AGENDA FOR THE PROJECT MANAGER

Although there are four specific roles involved in the developmental process (project manager, quality control team member, quality control team leader, and planning group member), these roles overlap to a considerable extent.

The responsibilities of the project manager and the quality control team leader, however, are more specific than those of the other participants. The project manager has overall responsibility for supervising the development of the performance indicators and for writing the Teachers' Manual; the quality control team leader advises the group on item construction and sees that the group's final product is consistent in terms of both quality control standards and district considerations. These two people should work together closely, both formally and informally, during the developmental phase of this planning effort.

The following is a proposed agenda for developing a performance indicator during a two-week period (five days a week, six hours a day).

Day 1

1. The project manager lists the tasks to be accomplished.
2. The project manager assigns people to specific functions.
3. Supplies and resource materials to support production are distributed, including district documents on goals and policy, curricula (topics to be covered) for the coming year, and textbooks. Materials such as scissors, Scotch tape, staplers, typing paper, rulers, pencils, and dictionaries should be supplied, and even tape recorders and cassettes could be used.

Note: If their respective roles have been discussed before the summer planning session begins, participants can often plan ahead and be able to bring or suggest specific supplies and materials.

4. The group clarifies and refines their planning objectives by:
   - reading their established planning objectives with care,
   - rewording the planning objectives to eliminate any possible semantic confusion, and

- writing qualifying statements (based on group consensus) to explain each planning objective so that others will be able to understand them.

Note: The group may, of course, change or revise their planning objectives whenever necessary.

5. The project manager and the quality control team leader should have read pages 161 to 163 in preparation for Day 2.

Days 2 and 3

1. The project manager and the quality control team leader present information relating to item and test construction considerations to group members for discussion. This information is outlined on pages 161 to 163.

2. The group prepares performance indicator diagrams. (The information contained on pages 163 to 166 includes a format for such a diagram which is used to organize indicator construction.)

Note: Teachers may want to work on indicators for the grade level they are teaching currently (for instance, a 2nd-grade teacher probably would elect to work on a K-3 performance indicator). Precise assignments, however, will depend on overall district needs and on the composition of the planning group. The project manager and the quality control team leader should be constantly aware of, and sometimes actually involved in, the indicator development effort.

Days 4 and 5

1. The preliminary item-feasibility audit of performance indicators begins. The quality control team examines the indicator items developed in terms of their feasibility. (See pages 161 to 163.)

2. The project manager starts to prepare the Teachers' Manual. (See page 152.)

Days 6 and 7

1. The second item-feasibility audit of performance indicators is made. This audit should focus on elements such as:

- timing,
- consistency of response to items,
- sequence of indicator items (it is suggested that the first few items on the indicator be easy, review items), and
- the arrangement of indicator items in terms of planning objectives.

After the second audit, the performance indicators should be in draft form, ready to be typed and illustrated.

2. Performance indicators are typed and proofread.

Days 8 and 9

1. Any illustrations needed for the indicator are made by the illustrator. (See page 153.)

2. The indicator is audited for the final time. The following considerations should be taken into account:

a. The quality control team should make a special effort to specify any last minute quality improvements in the performance indicators. Often, considerations such as making sure adequate space has been provided for pupil responses need attention at this time.

b. Teachers who are not members of the quality control team should also check to be sure that instructions for teachers, pupils, illustrators, and printers have been carefully worded and accurately typed. It is helpful to have members of the quality control team and the planning group exchange their draft copies of the indicators before making last minute criticisms and suggestions.

c. A final proofreading of the Teachers' Manual is also necessary. After the final audit, quality-controlled prototype copies of the performance indicators and the Teachers' Manual should be assembled and ready for the printer.

Note: All group members should have an opportunity to discuss the Teachers' Manual and make final suggestions at this time.

d. Other related materials should also be prepared, such as:

Teachers' Guide (instructions for teachers to read to pupils); Item Analysis (a list which related each indicator item to the appropriate planning objective; see example in Supplement B); and Answer Key, Answer Sheets, and/or audio-visual aids.

Note for the project manager: An estimate of the number of copies of each piece of material to be printed must be prepared for the printer (i.e., Indicator, Teachers' Manual, Teachers' Guide, Answer Key, etc.).

Day 10

The group reads Unit 2 of Section Two for information on implementation. As noted in the introduction to this section, this information is not related to the construction of performance indicators but provides basic information on how to plan for the implementation year.

TEACHERS' MANUAL

Many teachers who are not involved in the development of planning objectives and performance indicators will participate in the implementation of those indicators during the school year. They need to be informed on questions such as why, how, and by whom these indicators were developed and how they are going to use them. The Teachers' Manual should be designed in such a way that those who read it will understand the history and use of performance indicators. The Teachers' Manual will be distributed with copies of the indicators.

It is suggested that the project manager write the Teachers' Manual which may appropriately include the following information:

(1) the background of the planning effort;
(2) a list of the planning objectives established;
(3) an explanation of how the planning objectives were developed;
(4) clarifying statements and a few sample indicator items for each planning objective;
(5) information on who developed the performance indicators;
(6) information on when and how to administer the indicators; and

(7) some information on pre- and post-indicator data analysis. (Optional.)

ILLUSTRATING YOUR INDICATOR

Whether or not your group hires an illustrator to assist in the preparation of your performance indicator is optional; however, if you do need one, it is suggested that this person start working during the final days of the summer session while your planning group is still adding the final touches to the indicators. If possible, the illustrations should be done at the time the performance indicator is developed. This way, the illustrator can get ideas directly from the teachers.

The project manager should work very closely with the illustrator, and see that working space, stationery, supplies, and usable, ready-made illustrations are provided for him. The illustrator should be aware that the job does not have to be done in an overly artistic manner. Direct and simple illustrations that provide pupils with sufficient information to solve the problems are all that is required.

TASKS FOR DEVELOPING YOUR PERFORMANCE INDICATOR

Day 1: Clarifying Planning Objectives.

Before any items are developed for the performance indicators, it is recommended that the group clarify their planning objectives to eliminate as many areas where conflicts and misunderstandings could arise as possible.

The participants may agree on the level of abstraction for each planning objective, but when the objectives are considered as a set, one or two may seem out of place because they are either more abstract or more specific than the others.

Also, a given planning objective may be interpreted differently by different people. Questions may arise, such as "What kinds of things should be related to this planning objective?" or "When we say *problem-solving,* as a planning objective, are we all talking about the same kind of student classroom behavior?" Ideally, each planning objective should have only one possible meaning.

It is beneficial, therefore, to have the planning group re-examine, re-negotiate, and re-argue all of the planning objectives. This effort will result in the generation of clarifying statements and sample items (see pages 156 to 158) which will facilitate the development of indicator items. If the group is not satisfied with the planning objectives originally established, revisions should be made.

Three factors should be considered:

1. A planning objective should be clearly defined.
2. When a set of several planning objectives is examined, the group should make sure that their respective levels of abstraction do not differ greatly. (Examples of the abstraction level problem were presented on pages 19 to 20 and 24 to 25 of Section One, Basic Skills and Concepts.)
3. Clarifying statements should make the meaning and intent of a given planning objective clear to the teachers administering the indicator. For example, "An item which relates to the planning objective, problem-solving, is one which calls upon

the student to use previously taught material in a situation different from the one in which that material was presented."

Examples of some clarifying statements and sample indicator items for several reading planning objectives are provided on pages 156 to 158.

EXAMPLES OF CLARIFYING STATEMENTS AND SAMPLE ITEMS FOR PLANNING OBJECTIVES

(From *Teachers' Manual for Reading,* Harrisburg City Schools, 1971-1972)

Planning Objective A: Students should acquire positive attitudes toward themselves and reading.

Clarifying Statements: A child's attitude toward himself contributes to (and draws from) his attitude toward, and appreciation of, reading. Encompassed in this objective are the following ideas:

- a child should appreciate reading
- a child should feel the need to read
- attitudes toward self and reading are interrelated

> *Example*: Checklists with questions like the following:
>
> Does the child select books from library shelf in his free time?
>
> *usually* *sometimes* *never*

Planning Objective B: Students should gain basic skills in reading.

Clarifying Statements: A child should acquire skills and methods useful in word attack. Some specific skills are:

- auditory and visual discrimination
- analysis of phonetic elements
- structural analysis

> *Example*: Replace the first letter of the word in the box with one or more letters to make a new word that fits the sentence.
>
> Town The . . . . . in the circus rode a . . . . . pony.

Planning Objective C: Students should develop comprehension in reading.

Clarifying Statements:

1. Vocabulary (word usage and meaning) for

   - listening
   - speaking
   - reading
   - writing

2. Critical skills including

   - analysis
   - inference
   - judgments
   - elimination of non-essentials

> *Example*: Students will read a selected newspaper item and identify statements of opinion.

Planning Objective D: Students will develop communication skills from reading.

Clarifying Statement: This includes both oral and written expression of facts, ideas, and feelings.

> *Example*: Members of a student symposium are able to organize facts abstracted from a reading assignment on drug abuse for their peers.

Planning Objective E: Students should be provided with study skills for reading.

Clarifying Statement: This includes reference and investigative skills.

> *Example*: Use the index to your book to answer the question:
>
> 1. On what page(s) will you find the topic "ballads?"
>
> (a) 289 (b) 115 (c) 210

GROUP EXERCISE 1

DAY 1

Re-examine each of your planning objectives and prepare clarifying statements and sample indicator items for them. See previous examples for format.

The following information on item feasibility considerations was prepared for the quality control team and the project manager. Other group members may turn to page 163.

Days 2 and 3: Briefing on Item Feasibility Considerations in Preparing a Performance Indicator.

By now, your group should have reached agreement on your planning objectives and you should be ready to consider some of the factors that are important in preparing a high quality performance indicator. The following information will be presented to other planning group members by the quality control team leader on Day 2.

A. *Considerations with regard to item preparation*:

1. Each item should be related to a particular planning objective. (The planning objective provides the focus and rationale for the item.)

2. No rule has been established for the number of new versus review items to be included in a given indicator; the group itself should determine the number of new items and review items. New items are related to concepts or materials covered between September (pre-indicator time) and March (post-indicator time). Review items are based upon concepts or materials covered in previous years which pupils already should have mastered.

3. Decisions should be made regarding which type(s) of items will be used in order to elicit: (a) written student responses, (b) oral student responses, (c) physical demonstrations by students, or (d) student behavior reported by a trained observer or by a teacher. [For example, the Harrisburg City Schools developed a Reading Skill Checklist for Kindergarten children (five-year-olds). The checklist was filled out by the teacher acting as an observer.]

4. Items should be related specifically to the grade or maturation level of the pupils.

5. Items should be of interest to the pupils.

6. Terms used in the items should be familiar to the pupils and consistent with what is taught in class.

7. Items should be factually accurate and should not contain statements involving common fallacies and misconceptions.

8. Alternative answers supplied for a multiple-choice item should be realistic. Each possible choice should present a realistic alternative.

9. There are three kinds of item scoring for performance indicators:

   a. *Computer scoring* for multiple-choice and true-or-false items.

   b. *Teacher scoring* for open-ended items.

   c. *Data analysis* for behavioral checklists filled out by teachers.

10. An answer key with marking and scoring instructions should be prepared.

11. Specific instructions should be prepared for the illustrator.

12. The number of items needed for the indicator should be determined. (This includes consideration of how long it will take to administer the indicator.)

B. Considerations with regard to item presentation:

1. Items should be grouped by planning objective.

2. The items related to each planning objective should be arranged in approximate order of difficulty.

3. Instructions to pupils should be clear. Directions should be explicit, especially for primary level students, and simple enough for pupils to carry them out readily. When possible, items should be shown to a few pupils to be sure that the instructions are correctly understood.

4. Work space and answer space for each item should be provided and appropriately placed.

5. The size of the print used for K-2 grades might be different from that for the pupils in higher grades.

When the developed performance indicator items are audited on Days 4 through 7, that audit will be based upon the foregoing considerations.

DEVELOPING A PERFORMANCE INDICATOR DIAGRAM

When you are constructing performance indicator items, a "performance indicator diagram" should be prepared. The diagram can be a very helpful planning device. When well-constructed, a performance indicator diagram provides six important pieces of information on each indicator item (see the format on page 165):

1. The purpose of the item (e.g., to test the concept of "set").

2. The planning objective to which the item relates.

3. Whether the item is a review item or a new item. (A review item tests student knowledge regarding material taught in previous years while a new item is based on material covered between September and March of the implementation year.)

4. Student and teacher instructions. These are instructions to be given to students to enable them to answer the items. Also, it

is helpful to determine how you are going to communicate with the teachers who are not in the planning group but will actually administer the performance indicators during the forthcoming implementation year.

5. The prototype items (sample items).

6. An estimate of the time needed by the student to complete each item.

This information and the way in which it is presented provides a helpful format to use in organizing your efforts. It is possible to proceed without such a diagram, but one advantage in using the diagram is that it enables you to see "the trees and the forest" at the same time.

SAMPLE FORM
PERFORMANCE INDICATOR DIAGRAM
*Program:*_____

ITEM NO.	PURPOSE	PLANNING OBJECTIVE	REVIEW/NEW	ITEM INSTRUCTION	PROTOTYPE ITEM	TIME

BEST COPY AVAILABLE

EXAMPLE
PERFORMANCE INDICATOR DIAGRAM
PROGRAM: FIFTH-GRADE READING *

ITEM NO.	PURPOSE	PLANNING OBJECTIVE	REVIEW/NEW	ITEM INSTRUCTION	PROTOTYPE ITEM	TIME
9	To determine whether the child can recognize and use suffixes and prefixes.	Word Attack	Review	Read the sentence and select the correct answer. Write the letter in the blank.	1. The root word of "re-read" is ..... a. read b. re c. suffix 2. It was ..... when he put the medicine on the cut. a. cheerful b. beautiful c. painful	30 sec. 30 sec.
10	To test the child's ability to recognize words that can be made into contractions and to evaluate how well he can put these words into contractions.	Word Usage	Review	Find words that can be made into contractions. Write the contractions on the line. Use an apostrophe where the letters are left out.	1. He could not read. ..... 2. Paul will not eat.	20 sec. 20 sec.
11	To test the child's ability to put words into alphabetical order, using the second and third letter.	Study Skills	Review	Number in alphabetical order the words in each list.	1 2 ..... plug ..... barrel ..... potatoes ..... badge ..... parents ..... banana ..... perfume ..... barn	1 min.
12	To evaluate the child's ability to recall, make inferences, to find the main thought, and to put things in order.	Comprehension	Review	Have children read the paragraph and answer the questions below it.	Dugouts are used a great deal by the explorers of jungles of South America. Two explorers can travel far up a shallow river and see lovely flowers, colorful birds, monkeys, and thick tropical forests. 1. These explorers work in ..... South Africa ..... Southern Asia ..... South America 2. The dugout that these men use in shallow rivers must not be ..... fast ..... useful ..... deep	1 min.

*Harrisburg City Schools, 1971-1972.

GROUP EXERCISE 2

DAYS 2 and 3

Try to follow the performance indicator diagram format given on page 165 and prepare your own diagram. You may include as many items as you wish. Remember—your performance indicator diagram serves as a *plan* for what *you* are going to do.

It is helpful to prepare many more items than will be needed. Then you can select only the best items for your indicator.

DAYS 4 and 5

The quality control team, with the rest of the planning group, audits the developed performance indicator for the first time, giving special attention to considerations of item-feasibility. The group makes all necessary changes.

DAYS 6 and 7

The quality control team, with the rest of the planning group, audits the revised performance indicator for the second time. The group makes all necessary changes.

Note: If auditing requires less time than the four days provided, the group is encouraged to proceed.

DAYS 8 and 9—Final Development Considerations

By this time, several tasks should have been completed, and you should have a performance indicator diagram. With others, you have struggled through the development of indicator items and written clear and communicative directions for them. You and the other group members should now consider the technical production factors—final development considerations—and decide upon:

1. The length of time to be allowed for administering the indicator. Since the indicator covers material taught in past years, as well as new material taught between September and March of the current school year, more time should be allowed to administer the post-indicator than the pre-indicator. In one school district, for example, one class period was needed for the pre-indicator and two class periods for the post-indicator.

2. The number of items to be included. Be sure that the number of items is based on the time required to administer the post-indicator.

3. The information to be supplied on the cover sheet, including general directions.

GROUP EXERCISE 3

DAYS 8 and 9

Assemble your complete set of performance indicator items, using the information on page 169 for guidance.*

*On Day 10, the planning group reads Section Two, Unit 2, How to Plan for the Implementation Year.

SUMMARY OF UNIT 1

This unit provided the planning group with guidelines and factors for consideration in developing performance indicators. The planning group's efforts should result in high-quality performance indicators that can be used to measure curriculum-teacher-student progress in terms of curriculum planning objectives.

After the performance indicators have been developed, the project manager is responsible for having sufficient copies of all materials reproduced, packaged, stored, and eventually delivered to each school building at least two weeks before school begins.

SUPPLEMENT A

SAMPLE INDICATOR ITEMS

(Created by Harrisburg City School teachers for Grades 6-9 reading program. Planning objective: Students should obtain study skills in reading.)

Teacher A

Reference Skills

The student will be able to state in writing a book's *title, author(s), copyright date(s),* and *publishing company.*

The teacher will place on the board, or on a transparency, several examples of a book's title, author(s), copyright date(s), and publishing company. After these examples are placed on a transparency or on a board and the student is instructed, the student will choose several books and name the book's title, author(s), copyright date(s), and publishing company.

Teacher B

Reference Skills

The student will be able to understand and to comprehend the importance and the usage of a *glossary.*

The teacher will explain the importance and the usage of a glossary. The student will then be given a book, find the glossary and answer questions related to the glossary from the book given.

Examples

1. Write the meaning of the following words:

   gravity:
   air pressure:

2. Write sentences which help to explain the following words:

space center:
Oxygen:

3. Underline the right way to say the following words:

de pend (di pend′) (dē pĕnd)
ex plain (ik splān′) (ex plane)

Teacher C

Reference Skills

The students will be able to understand and to comprehend the usage, the importance, and the function of a *dictionary*.

The teacher will exhibit examples related to a dictionary on the chalk board or on transparencies in order to explain the importance, usage, and function of the *dictionary*. The student will be given a dictionary from which to answer questions related to the dictionary.

Examples

1. The words listed below need guide words. Look up these words in your dictionary and write the two guide words found.

hybrid
keep up
now

2. Each pair of words listed in Column 1 are dictionary guide words; place each word located in Column 2 with the proper guide words.

Column 1	*Column 2*
countermeasure—courage	cowl
cover—crazy	county-seat
	covet
	coupe
	coy

3. Place these words in alphabetical order.

pray	prawn	preach
precession	preachy	prearrange
precede	precancerous	preachify

4. Find the definitions of the following words:

face
family
figure

5. After finding the definitions use each word in a sentence.

face
family
figure

6. Find a synonym for the following words:

adjust
abide
abandon

Teacher D

Reference Skills

The student will be able to understand and to comprehend the usage, the importance, and the function of an *encyclopedia.*

The teacher will explain the usage, the importance, and the function of an encyclopedia. The student then will be given an encyclopedia to use in answering questions from a worksheet.

Examples

1. Where can the term "germ" be found?
2. Where can the history of the United States be found?

Teacher E

Reference Skills

The student will be able to understand and to comprehend the importance and the usage of reading a *map*.

The teacher will explain the importance and the usage of map symbols and what they represent. The student will then answer questions related to a map.

Examples

1. What toll road would you use to go from Harrisburg to Philadelphia?
2. What road would you use to go from Philadelphia to Pittsburgh?
3. Name the commercial airports found on the map.
4. Where are the recreation areas located around State College?

SUPPLEMENT B

Performance Indicator
Social Studies
Grade 8
Item Analysis

Objective 2: to gain information about cultures and sub-cultures of the world. Items 1, 2, 3, 4, 5, 6, 7	Objective 3: to describe the processes of life. Items 8, 9, 10, 11, 12
Objective 4: to develop the skill of critical thinking relative to man's social relationships. Items 13, 14, 16, 18, 19, 20, 22, 25	Objective 6: to gain an awareness of man's physical and social environment. Items 15, 17, 21, 23, 24

Answer Key

1. a, b, d, e, f
2. a, b, c, f
3. a, c
4. b, c, d, f
5. a, b, d, e
6. a, b, d
7. a, b, c, d
8. a, b, c, d, e
9. d
10. b, c, d
11. a, b
12. a, b
13. a, b, c
14. a, c, d
15. e
16. b
17. b
18. a
19. b
20 a
21. b
22. a
23. a, b, c
24. b
25. b

SECTION TWO

UNIT 2

HOW TO PLAN FOR THE IMPLEMENTATION YEAR

This unit will enable you to:

(1) Develop an implementation plan for the coming year.

(2) Develop a schedule for your implementation plan.

(3) Respond to questions and explain activities to other teachers and school administrators.

INTRODUCTION

During the first summer of this planning project, the project manager will make sure that the performance indicators are developed and reproduced; he will also be responsible for developing an implementation plan for the coming school year (Year 1). When preparing the plan, the project manager should (1) make any organizational modifications needed to enable the staff to implement the plan according to the schedule, and (2) carefully schedule key activities during Year 1 of the project so that they do not conflict with regular school activities.

At this point, you should be able to proceed on the basis of the following assumptions:

1. Sufficient copies of performance indicators, answer keys, Teachers' Manuals, and any other necessary materials are available.
2. The budget for implementing performance indicators during Year 1 has been approved.
3. Participating teachers and principals will have time available for any in-service training required.

It is suggested that the implementation plan be prepared during the summer because: (1) the teachers and principals on the planning team will be available to consult on scheduling the plan, (2) it takes time to make the arrangements specified in the plan, and (3) the plan has to have the support of the superintendent and other key staff members before the school year begins.

This unit will help you to design an implementation plan which will be a practical guide to follow during the coming year.

ORGANIZATIONAL MODIFICATIONS

The organizational structure during the implementation stage differs from that of the indicator development stage in both scope and function. The indicator development effort involved only a small group of people, whereas the implementation effort will involve many more teachers and principals within the district. The planning group ceases to function after all performance indicators have been developed. Some members of the planning group, however, usually function as building planning coordinators or participating teachers during the actual implementation. As implementation begins, a new kind of organizational structure is needed.

As you look through the diagrams on pages 184 to 187, you will find (assuming only one curriculum area is involved) that there are five roles involved in the project. The roles are specified in terms of the following titles: the superintendent, the project manager, the principal, the building planning coordinator, and the participating teacher. Note that we have classified these roles according to the positions of the people who will probably fill them. The actual positions of the individuals filling these roles may vary from district to district. The following descriptions will help you to identify the appropriate people in your district to assign to these project roles.

The *superintendent* is the top decision-maker. In terms of this planning effort, his main function is to establish and reinforce district commitment to the project, i.e., to provide needed resources and establish a climate conducive to the successful implementation of the project. After the superintendent has approved the project and assigned a project manager to supervise its implementation, he should continue to show his interest and support throughout the year, even though his direct involvement may not be necessary. Toward the end of the year, he will receive reports from the project manager and/or the principals. The superintendent then will discuss alternatives with the school board and propose changes where the information indicates that changes are needed.

The *project manager* is the coordinator between the central district office and the schools. He is responsible for all of the following activities:

(1) distributing the indicators;
(2) collecting the indicator data and arranging to have them processed;
(3) arranging teachers' meetings (time, place, and compensation);
(4) meeting with building planning coordinators and principals;
(5) submitting a district plan for change to the superintendent; and
(6) coordinating resource requirements with the business manager.

The *principal* provides building level support, e.g., supplies, clerical help, arrangements for teachers' meetings, etc. Most important, he makes recommendations for change, on the basis of building results, to the superintendent through the project manager. He may also want to

meet with the teachers and/or the superintendent as the project evolves. Often, a principal will be a member of the planning group.

The *building planning coordinator* has direct contact with the teachers and the principal in each school. He explains to the teachers how to administer the indicators as well as how to interpret the results, and, most important, compiles the teachers' written or oral recommendations for change which, in turn, he discusses with the principal or the project manager.

The *participating teacher* administers and scores the pre- and post-indicators and receives the results for his own classroom. The post-indicator reports indicate the degree of change in class performance on the planning objectives since the pre-indicator was administered. This gives the teacher fresh insights regarding the strengths and weaknesses of his class in relation to the various planning objectives. He is also encouraged to discuss with other teachers whatever factors he thinks may have contributed to the strengths and to make recommendations in terms of teaching methods, curriculum content, time allotted for instruction, instructional materials, etc., which he feels may alleviate or correct any weaknesses discovered.

The information gathered by the administration of performance indicators changes the functions of both teachers and administrators by structuring new interpersonal communication links which enhance the information flows necessary for the assessment of areas where meaningful change is needed.

THE KEY ACTIVITIES

The key activities during the first year of implementation are:

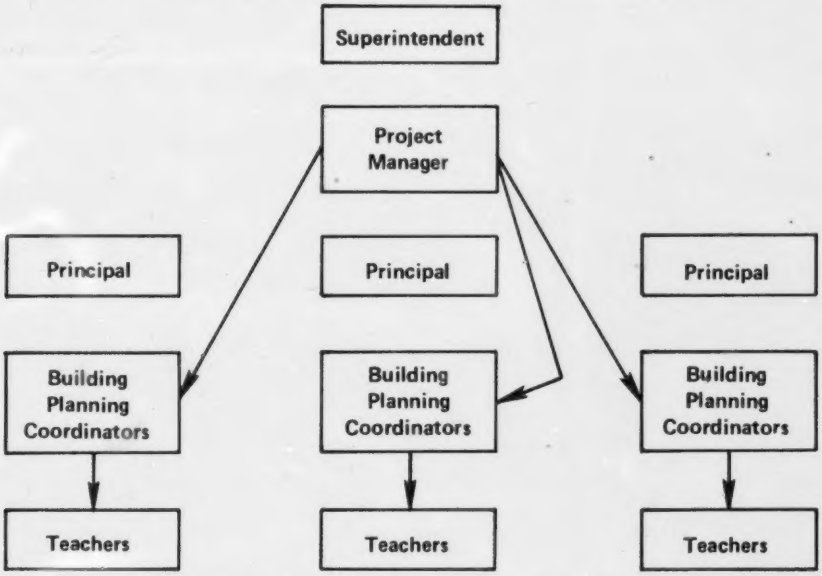
(1) distributing pre- and post-performance indicator booklets to teachers;
(2) administering the indicators;
(3) collecting the indicator data;
(4) processing the data;
(5) returning the processed data in a confidential manner; and
(6) recommending changes based on the processed results.

In performing these activities, different patterns of interpersonal communications will appear, which we shall refer to as *information flows.* Increased communication among district staff members involved with curriculum concerns is one of the many advantages associated with comprehensive planning.

The charts which follow illustrate the special information flows required in carrying out key implementation activities in your district. These charts depict the information flow required for each of the key activities involved. Although the diagrams illustrate information flow only in terms of three buildings, the same information flows could appropriately be extended if additional schools within the district were involved in this project.

INFORMATION FLOW DIAGRAMS FOR DISTRICT LEVEL IMPLEMENTATION

ACTIVITY 1: DISTRIBUTION OF PRE- OR POST-INDICATORS

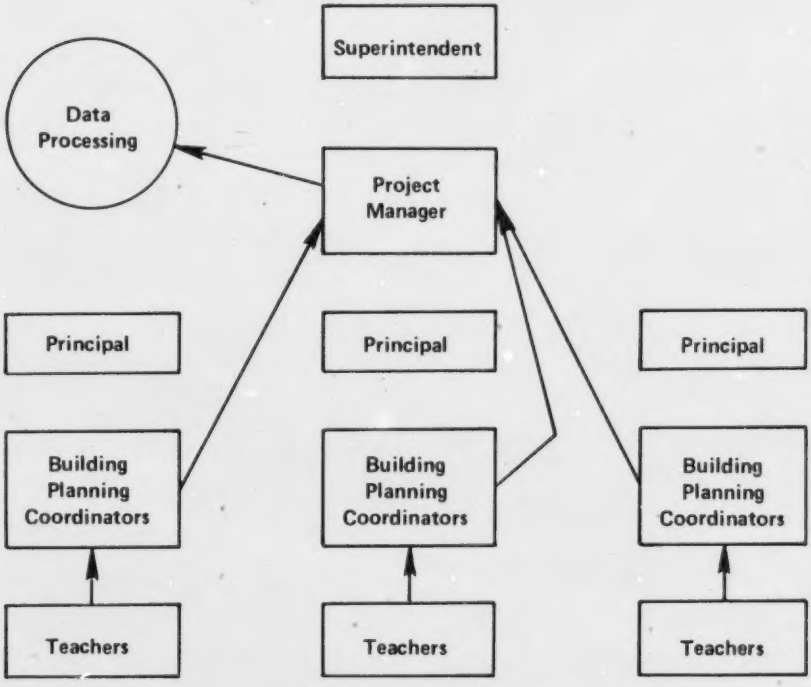


The pre- or post-indicators are distributed by the project manager to the building planning coordinators, who supply them to participating teachers at the time scheduled. *Please note that neither the principal nor the superintendent is involved in the information flow for this activity.*

ACTIVITY 2: ADMINISTRATION OF PERFORMANCE INDICATORS BY PARTICIPATING TEACHERS

Obviously, a diagram for this activity would be of limited value, since the only communication involved is between the students and the participating teachers.

ACTIVITY 3: COLLECTION OF PRE- AND POST-INDICATOR DATA

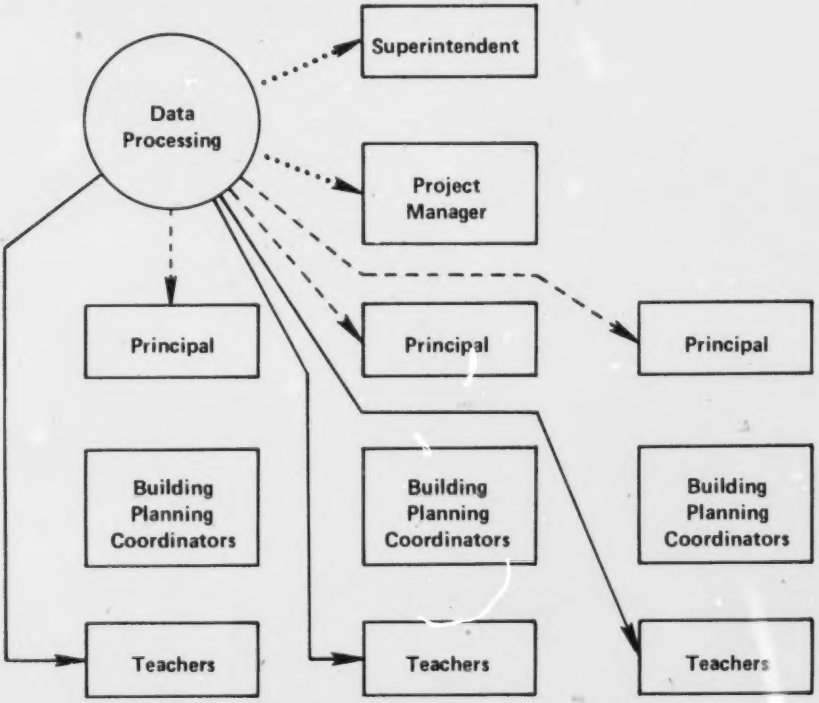


The pre- and post-indicator data are collected by classroom teachers and funneled through the building planning coordinators and the project manager to the data processing center. *Please note that neither the principal nor the superintendent is involved in the information flow for this activity.*

ACTIVITY 4: DATA PROCESSING OF THE PRE- AND POST-INDICATOR DATA

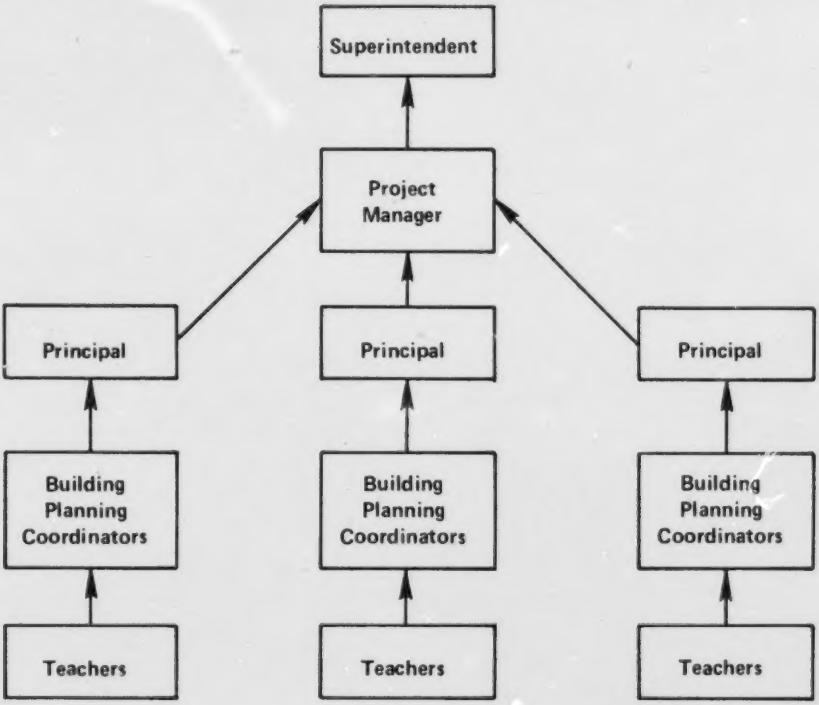
No information flow occurs among school staff members in connection with this activity.

ACTIVITY 5: RETURN OF THE PROCESSED DATA



After the performance indicator data have been processed, classroom results and summary building results, respectively, are mailed directly to individual teachers and principals. *Please note that the building planning coordinators are not involved in the information flow for this activity; however, the superintendent and the project manager receive summary reports for the entire district.*

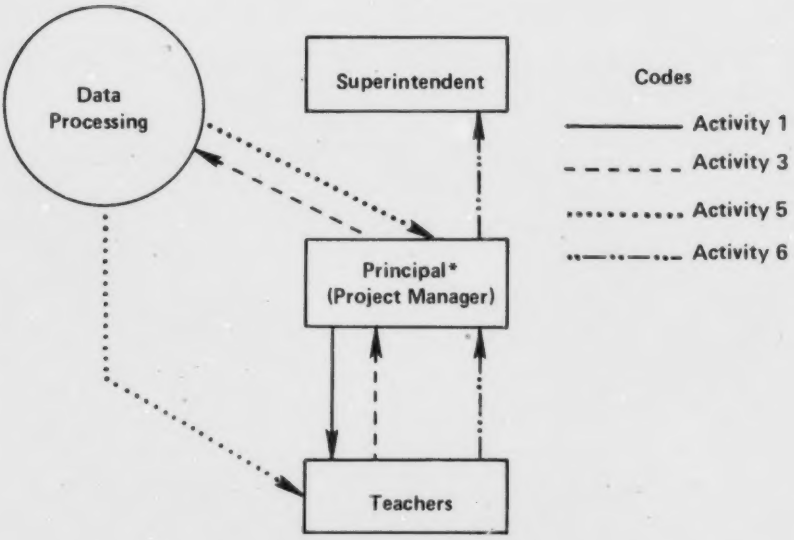
ACTIVITY 6: RECOMMENDATIONS FOR CHANGE



After the data have been analyzed, recommendations for change at the different levels (from teachers at the classroom level, from principals at the building level, and from the project manager at the districtwide level) are forwarded to the responsible personnel at the next higher level. Final districtwide recommendations are presented to the superintendent by the project manager.

If you are interested in another possible information flow design that might be appropriate for implementation at the building level, continue reading; if you are not interested in this material, turn to page 189.

INFORMATION FLOW DIAGRAM FOR BUILDING LEVEL IMPLEMENTATION



Activity 1: The performance indicators are distributed by the principal to the participating teachers.

Activity 2: Teachers administer the performance indicators.

Activity 3: Teachers collect performance indicator data and, through the principal, send them to the data processing center.

Activity 4: The data are processed.

Activity 5: Processed data are mailed directly to the teachers and the principal.

Activity 6: Recommendations for change at each level are proposed by the teachers (classroom level) and the principal (building level) to the person at the next higher level.

*The principal may have a dual function when implementation is at the building level. In some cases, it may be feasible for the principal to assume the project manager's responsibilities within his own building, which eliminates the need for a building planning coordinator.

AN IMPLEMENTATION SCHEDULE

Regular achievement tests measure student learning status as compared to *national "norms,"* but performance indicators provide information on the achievement of *district planning objectives* which can be used for current program assessment and future program planning. Considering this focus, it is extremely important that the staff be provided with an opportunity to review, discuss, and analyze the information gathered by the performance indicators.

Because of the unique way in which performance indicators are used, implementation has to be planned in such a way that teachers and administrators have sufficient time to analyze and be able to apply the information which results. It is advisable to administer the performance indicators twice during the year, i.e., first in September and again in March. One and a half months should be allowed for data processing after each administration. This will allow the teachers and principals to get the final results and make recommendations for curriculum change and improvement before the school year ends.

Due to the considerations just discussed, a carefully constructed, sufficiently detailed schedule of activities will be needed to both facilitate implementation and eliminate possible conflicts with regularly-scheduled school activities.

Refer to the following example of such a schedule. As you read it, consider how this schedule could be adapted for your district's planning effort.

EXAMPLE OF A DETAILED IMPLEMENTATION SCHEDULE FOR FIRST YEAR IMPLEMENTATION

Before the School Year Begins

Date	*Activity*
During the summer	1. The project manager meets with the superintendent and together they determine the strategies which will be used to involve teachers (e.g., teacher compensation, in-service training, etc.) and principals (e.g., their roles, in-service training, etc.).
Just before school opens	2. The project manager briefs the principals, presents a schedule for the coming school year, and with the principals, selects the building planning coordinators.

After the School Year Begins

Date	*Activity*
First week of school	1. The project manager meets with the building planning coordinators.
Early during the first month of school	2. Teacher in-service training meeting A (which requires approximately 1/2 hour). At this meeting, the building planning coordinators brief the teachers. Their presentation will be supported by well-written explanations of the planning process, as well as its pur-

	poses and implications, e.g., a teacher-involvement schedule and a Teachers' Manual.
Before the end of the first month of school	3. Pre-indicators are distributed to the building planning coordinators, who in turn will distribute them to individual teachers in the building. A document explaining how to administer performance indicators should be given to the teachers.
The fourth week of school	4. Teachers administer and score the pre-indicators. They then transfer the information to the student response sheets. (See example on page 194.)
The fifth week of school	5. The response sheets are sent to be processed. Teachers complete and submit class lists. (See page 195.)
Approximately one month later	6. Teacher in-service training meeting B. Tabulated information* (see page 196) should have been returned to each teacher by mail.

*Each teacher's classroom information is guaranteed to be confidential. Information about individual teachers and classrooms will *not* be shared with any other individuals. If any teacher violates this rule, the confidentiality of *all* results will be jeopardized.

	Planning coordinators will assist teachers in interpreting results.
Approximately two months before the end of the school year	7. Post-indicators are distributed to the teachers.
The following week	8. Teachers administer and score the post-indicators. They then transfer the information to student response sheets.
The next week	9. The response sheets are sent to be processed.
Approximately one month before the end of the school year	10. Teacher in-service training meeting C. Tabulated information is returned to teachers (see sample formats on pages 197 and 198) and to principals (see sample format on page 199). Techniques for interpreting the results should be discussed.
The following week	11. Teacher in-service training meeting D. Teachers make recommendations to building planning coordinators, who, in turn, discuss the teachers' recommendations with the principals.

After the School Year Ends

Date	*Activity*
During the second summer	12. The project manager re-

ceives building plans for change from the principals and building planning coordinators and submits a district plan for change to the superintendent.

13. The superintendent discusses the recommendations for change with the project manager and the principals.

14. The superintendent prepares and submits a revised school district program plan and budget to the school board.

15. The school board makes its decision on the plan and the budget.

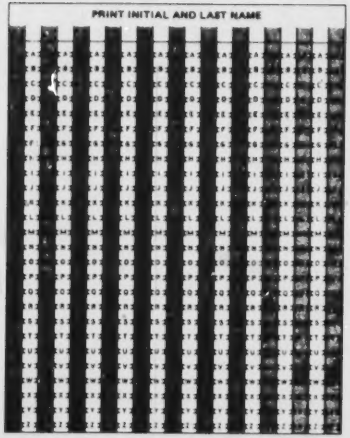
Please turn to page 201.

BEST COPY AVAILABLE

RESEARCH FOR BETTER SCHOOLS

DATE: PRE / POST

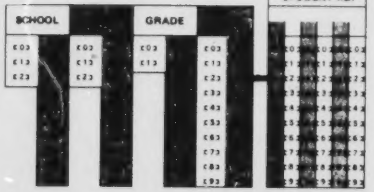
PRINT INITIAL AND LAST NAME



SCHOOL

GRADE

STUDENT I.D.



*CLASS LIST**

RAPID CITY TOWNSHIP SCHOOL DISTRICT
CENTRAL HIGH SCHOOL

197..FALL INDICATOR CLASS LIST

BASIC MATH REVIEW

GRADE 8 CLASS 02 MR. MILLER

PUPIL	CODE NO.**	LOWER THIRD	MIDDLE THIRD	UPPER THIRD
Adelman R.	54321	√		
Bender D.	53214		√	
Bloom G.	53142			√
Cohen N.	51432			√
Danser E.	45321		√	
Goldman A.	43215	√		
Leddy N.	41235		√	
Perlson A.	32145	√		
Segal S.	31254			√
Skyler J.	25431			√
Voluck L.	23451	√		
Zellman S.	21354		√	

*This is a sample class list for Mr. Miller's students. Students in his class have been divided into three ability/achievement groups which are approximately equal in size. These groupings should be determined on the basis of past student performance in the classroom, their homework, and the observations of the teacher. This is done to give the teacher more information on the classroom environment with which to answer questions such as, "Are all students advancing at similar rates?" or, "Is there a wide spread of abilities in my classroom that must be considered?"

**These figures are student identification numbers which are assigned by the computer.

SAMPLE COMPUTER PRINTOUT OF PRE-INDICATOR ITEM ANALYSIS

RAPID CITY SCHOOLS
HAMILTON ELEMENTARY SCHOOL GRADE 3 MATHEMATICS
MRS. MIA LEONARD

CONCEPTS

STUDENT RESPONSE

ITEM NO.	A	B	C	D	E	VOID	CLASS % CORRECT	DISTRICT % CORRECT
1	6*	1	1	1		1	60.0	52.5
2	2	2*	1	1	3	1	20.0	15.0
4		*				10		7.5
8	3*	1				6	30.0	42.5
AVERAGE							27.5	29.4

COMPUTATIONAL SKILLS

STUDENT RESPONSE

ITEM NO.	A	B	C	D	E	VOID	CLASS % CORRECT	DISTRICT % CORRECT
3		1	1	1*	1	6	10.0	10.0
5	1	1	4*			4	40.0	47.5
6					3*	7	30.0	42
7	1		1		2*	6	20.0	
AVERAGE							25.0	

An asterisk indicates the correct answer for each item.

SAMPLE COMPUTER PRINTOUT OF PERFORMANCE INDICATOR ANNUAL SUMMARY

(PERCENTAGES ARE CORRECT ANSWERS TO INDICATORS)

RAPID CITY SCHOOLS
HAMILTON ELEMENTARY SCHOOL

GRADE 3

MATHEMATICS
MRS. MIA LEONARD

BASIC SKILLS

	CLASS %	DISTRICT %
UPPER THIRD	83.02	97.12
MIDDLE THIRD	48.60	78.32
LOWER THIRD	33.96	50.00

ALL STUDENTS % ON THIS OBJECTIVE*

POST-INDICATOR	55.64
PRE-INDICATOR	41.23
CHANGE	+14.41

CONCEPTUAL KNOWLEDGE

	CLASS %	DISTRICT %
UPPER THIRD	93.25	90.00
MIDDLE THIRD	84.80	83.25
LOWER THIRD	76.43	75.00

ALL STUDENTS % ON THIS OBJECTIVE*

POST-INDICATOR	88.16
PRE-INDICATOR	28.36
CHANGE	+59.80

ALL OBJECTIVES

	POST-INDICATOR	PRE-INDICATOR	CHANGE
UPPER THIRD	87.93	70.32	+17.61
MIDDLE THIRD	69.78	53.27	+16.51
LOWER THIRD	56.47	44.56	+11.91

*All students refers to all of the pupils in Mrs. Leonard's Grade 3 mathematics class.

SAMPLE COMPUTER PRINTOUT OF

PRE-POST INDICATOR, ITEM ANALYSIS, THIRD-GRADE MATHEMATICS

INTERCOUNTY SCHOOL DISTRICT
OLD ELEMENTARY SCHOOL

GRADE 03 CLASS 0A MS JONES
NUMBER OF STUDENTS 10 IN CLASS 40 IN DISTRICT

ITEM NUMBER	**PRE-INDICATOR** /---STUDENT RESPONSE---/ A	B	C	D	E	VOID	CLASS % CORRECT	DIST % CORRECT	**POST-INDICATOR** /---STUDENT RESPONSE---/ A	B	C	D	E	VOID	CLASS % CORRECT	DIST % CORRECT
CONCEPTS																
1	6*	1	1	1		1	60.00	52.50	10*						100.00	82.50
2	2	2*	1	1	3	1	20.00	15.00		10*					100.00	62.50
4		*				10		7.50		10*					100.00	52.50
8	3*	1				6	30.00	42.50	10*						100.00	82.50
AVERAGE PERFORMANCE ON OBJECTIVE							27.50	29.38							100.00	70.00
COMPUTATIONAL SKILLS																
3		1	1	1*	1	6	10.00	10.00				10*			100.00	55.00
3	1	1	4*			4	40.00	47.50			10*				100.00	75.00
6					3*	7	30.00	42.50					10*		100.00	77.50
7	1		1		2*	6	20.00	15.00					10*		100.00	60.00
AVERAGE PERFORMANCE ON OBJECTIVE							25.00	28.75							100.00	66.88

An asterisk indicates the correct answer for each item.

SAMPLE COMPUTER PRINTOUT OF POST-INDICATOR BUILDING RESULTS

(PERCENTAGES ARE CORRECT ANSWERS TO INDICATORS)

RAPID CITY SCHOOLS
HAMILTON ELEMENTARY SCHOOL **GRADE 3** **MATHEMATICS**

BASIC SKILLS

	BUILDING %	DISTRICT %	ALL STUDENTS % ON THIS OBJECTIVE*	
UPPER THIRD	78.12	97.12	POST-INDICATOR	83.60
MIDDLE THIRD	88.04	65.32	PRE-INDICATOR	80.52
LOWER THIRD	64.04	50.00	CHANGE	+ 3.08

CONCEPTUAL KNOWLEDGE

	BUILDING %	DISTRICT %	ALL STUDENTS % ON THIS OBJECTIVE*	
UPPER THIRD	88.41	90.00	POST-INDICATOR	84.88
MIDDLE THIRD	84.25	83.25	PRE-INDICATOR	75.12
LOWER THIRD	62.00	75.00	CHANGE	+ 9.76

ALL OBJECTIVES

	POST-INDICATOR %	PRE-INDICATOR %	CHANGE %
UPPER THIRD	83.27	81.25	+2.02
MIDDLE THIRD	86.13	84.32	+1.83
LOWER THIRD	63.32	60.00	+3.32

*All students refers to all third-graders in the mathematics program of Hamilton Elementary School.

GROUP EXERCISE 1

Prepare a detailed implementation schedule for your own district or school following the format used for the sample schedule on pages 190 to 193.

Note: Make sure that: *all* key activities are included, dates are specified in terms of the calendar year, and information flows are clearly delineated.

You may want to add a third column for the name of the person(s) who will be responsible for the various activities:

Date	*Activity*	*Person(s) Responsible*

GROUP EXERCISE 2

Spend at least one hour discussing the following topics:

1. When you actually implement the plan again, what kinds of things must you be sure to consider? What should you be sure to tell participating teachers and principals?

2. When should the budget for the second year be submitted to *your* school board and superintendent?

3. How would/could a teachers' organization be involved in this project?

4. If someone asks you to explain a comprehensive planning effort in general and/or the use of performance indicators, what would you tell him?

SUMMARY OF UNIT 2

The implementation of a comprehensive planning effort requires the support of the superintendent and the school board. A detailed implementation schedule with a supporting budget is also needed. Often organizational modifications are necessary. The more thoroughly the implementation plan is prepared, the more predictable the course of implementation will be.

SUMMARY OF SECTION TWO

Section Two, Beginning Implementation, has described how to initiate a curriculum level planning effort based upon the concepts developed in Section One.

Unit 1 provided detailed guidance on how to develop performance indicators, while Unit 2 described the planning process necessary to implement the program.

SECTION THREE: PROJECT MANAGER'S GUIDE

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INTRODUCTION TO SECTION THREE

As indicated in the Overview, this book contains three individualized/self-instructional sections: Section One, Basic Skills and Concepts, provides participating teachers and administrators with individual and group activities that teach basic skills and concepts essential to the successful construction of performance indicators in a subject area; Section Two, Beginning Implementation, covers the implementation of performance indicators from their development to an explanation of one way results may be presented; and Section Three, the Project Manager's Guide, provides the person responsible for the management of the project with guidelines and information on the development and implementation of the planning project described.

The Project Manager's Guide is designed for the use of the individual responsible for the implementation of this planning effort. This individual, regardless of his district title, will be referred to as the project manager.

Section Three will serve as a guide and reference for the project manager to follow in preparing for the installation of a comprehensive planning effort. Checklists are provided to assist the project manager in assessing the performance of each task. The checklists should help him decide whether or not he is ready to proceed to the next task.

Sections One and Two should be used with this section, since they are closely related.

The *project manager* should read this section *before* reading and working with Sections One and Two of this book.

WHAT IS COMPREHENSIVE PLANNING?

Comprehensive planning has been developed as a method through which the improvement of educational programs can be achieved by direct and extensive teacher involvement. The implementation of a comprehensive planning effort helps school personnel to develop an information base that enables them to view district activities in terms of objectives common to many district programs.

Through the comprehensive planning process, school personnel in both administrative and teaching positions are able to create, share, and utilize a common information base to assess the current effectiveness

and efficiency of district programs and to determine where changes are needed. The comprehensive planning process allows the district staff to develop and improve planning skills which will enable them to prepare and use planning objectives and indicators of performance to provide information upon which to base decisions related to change.

A district planning project centers on helping teachers to evaluate their own efforts in the classroom so they can evaluate the quality of the pupil-teacher-curriculum interaction. The process starts with the development of a set of districtwide (K-12) program objectives called "planning objectives," developed by a planning group for the district. Then, "indicators of performance,"* measurements of how well these planning objectives have been achieved, are developed and used by teachers in their classrooms. To insure confidentiality of information, data from an individual teacher's class are given only to the teacher involved. When data gathered from different classrooms and different teachers are given to a principal, the information is pooled in such a way that information on a specific classroom or teacher is not identifiable. Since planning for decision-making purposes at the building level is quite different from planning for instructional purposes at the classroom level, the principal can study information from all classrooms and teachers in his school and analyze it in an attempt to identify overall patterns.

Principals examine patterns of strengths and weaknesses in the educational programs within their buildings. By assessing the information supplied by his teachers, a principal, in collaboration with the teachers, is able to prepare a plan for change. This plan will include supporting information on pupil performance as well as estimated expenditures when new cost factors are related to the changes proposed.

At the central-office level, the administrative staff should review the recommendations from the principals, prepare a district plan for change which encompasses the building-level proposals, and structure whatever support is necessary for the implementation of the changes approved.

*A performance indicator consists of a number of indicator items which are similar to the items found in a test. The length of a performance indicator varies as the needs of each curriculum area and grade level vary. It is suggested, however, that no more than 10 pages be included in a given indicator.

AN EXAMPLE OF THE PROCESS

The following describes how the comprehensive planning process was implemented in one school district.*

A three-year plan was developed for the installation of a comprehensive planning system in the Rapid City School District. Initially, the plan called for the creation of several planning groups to work in curriculum areas such as reading, mathematics, and social studies. Work in each area included all levels from early childhood education through senior high school. The initial planning groups included 86 teachers and 16 building-level administrators from various schools in the district. By the end of the school year, each planning group had participated in an in-service program, consisting of approximately 24 hours of training and orientation. This in-service program was related to the preparation of a set of planning objectives and performance indicators for each of the curriculum areas involved. During the summer, new groups, which included some of the people from the planning groups, developed performance indicators, and made plans for initial implementation of the program.

In September, teachers who had volunteered to take part in the program participated in an in-service training program and then implemented the comprehensive planning process in their classrooms.

Implementation of this project involved the following activities:

1. Teachers administered pre-performance indicators to their students.
2. The pre-indicators were scored and the processed information returned to individual teachers.
3. Teachers completed class lists and sent them through their building planning coordinators to the data processing center.
4. Six months later, teachers administered post-indicators to their students.
5. The post-indicators were scored and the processed information returned to the individual teachers and principals.
6. On the basis of the information received, teachers made curriculum-related recommendations to the building planning coordinators.

*This example is based on a planning project carried out in the Rapid City School District. (Rapid City has been used rather than the actual name of the location where this project was carried out.)

7. The building planning coordinators prepared lists of recommendations for the principals.
8. Each principal prepared a report for his building, including a budget request for each curriculum area involved.
9. The project manager received building recommendations for change from the principals and submitted district-level recommendations for change to the superintendent.
10. The superintendent reviewed the district-level recommendations with the project manager and the principals.
11. The superintendent prepared and submitted a revised school trict program plan and budget to the school board.
12. The school board decided on the plan and the budget.

During the second summer, a group of teachers revised the performance indicators to make needed improvements.

During the second school year of the program, more teachers decided to take part in the program; therefore, the in-service programs were broadened to accommodate the additional teachers.

COMPREHENSIVE PLANNING: ITS PREMISES AND ASSUMPTIONS

The premises of comprehensive planning are as follows:

1. It is essential to know to what extent curricular planning objectives are currently being achieved before decisions can be made regarding future plans. For example, if a school district has a number of ongoing programs, it would be premature to search for alternative programs without first developing a good information base for the analysis of current operations. Standardized achievement tests are not enough to provide the kind of information needed. Performance indicators, however, do provide the necessary information.

2. Explicitness is beneficial and functional, although sometimes being explicit can be painful. It is painful to admit that we do not know what our goals are or how to assess our own performance, but people do become comfortable with the tasks of developing planning objectives, measuring performance, etc., once the initial trauma is past.

3. Schools exist for children; therefore, the focus and posture of district personnel ought to be oriented to improving what is being done for the children. Teachers and administrators can and should work together in terms of this common focus. Experience with school

districts has indicated that this mutual approach can develop gracefully and that *everyone* is pleased with the benefits resulting from this type of interaction.

4. Underlying the comprehensive planning approach is the fundamental belief that the decision-making power in a school district should be more closely related to the needs of the individual classroom. This correspondence can be established by giving teachers and building-level administrators more active roles in the planning and decision-making process.

5. It is important to examine educational effectiveness, that is, what the school district does for its children and at what cost. Responsiveness to children's needs cannot be fully explored without examining how resources are allocated. Economic efficiency in the context of educational administration should mean the ability to provide optimal services for the children with the budget provided by the community. A fair hypothesis might be: Only when educators demonstrate their willingness and ability to do more for children, with the funds available for education, will the community demonstrate its support by increasing the allocation of resources for education.

PLANNING FOR CHANGE

When change is introduced into a school, it is often initiated through executive decision by the school board, the superintendent, or the principal. Some examples of such decisions are, "We want to introduce Individually Prescribed Instruction in three elementary schools" or "We want to have the Planning-Programming-Budgeting System (PPBS) operational by next September." The actual decisions might be very appropriate for the school district or school building involved, but a vital element may be missing—the support and approval of the personnel who must implement the change.

Individuals in any organization have differing values, beliefs, and attitudes that relate to what they are doing. Similarly, each change is based upon implicit and/or explicit premises and values, which may conflict with the values of the people involved in implementing that change. Therefore, when confronted by change, people frequently react with predictions, presumptions, and expectations about what will happen if that change is implemented. Partial understanding of the change proposed or unclarified predictions and presumptions may

result in resistance to the implementation of that change. *People who are participating in a change process should have an opportunity to discuss and explore the implications of the change with each other, and to align or realign their personal goals more closely with those of the organization.*

Comprehensive planning operates on the premise that the people who are involved in any change should have an opportunity to explore their varying perceptions of the change both before and during the period in which the change is introduced. This is done by establishing planning objectives and by developing performance indicators which enable teachers to assess how good a job they are doing for the children involved. By analyzing the present level of performance, people become more ready to explore possible changes and to debate the implications of various changes for themselves and for the children. Comprehensive planning, then, is really a democratic approach to change—designed to replace the authoritarian mandates which were so prevalent in the past.

THE ROLE OF THE PROJECT MANAGER

The key person in any comprehensive planning effort is the project manager. In order to understand his role and function, it is necessary to clarify three concepts: project, management, and project management.

A project is a goal-oriented effort directed toward the development of an *end product,* such as the production of a book or the adoption of a new curriculum, or a *capability,* such as putting a man on the moon, being prepared to negotiate a contract with a teachers' group, or installing a comprehensive planning system.

Each project is unique in that it has a *specified goal, definite starting and completion dates, a definite budget,* and *a stated acceptable level of performance.*

Management is defined as attempting to achieve a goal through the cooperative efforts of a group of people. Usually management involves four main functions: (1) activity planning, (2) organizing people to perform the activities, (3) motivating people to coordinate their efforts, and (4) controlling the process and the performance of the project so that it will be goal-satisfying.

Project management, then, is the application of the functions of management to a project to insure that the specified end product or

capability is developed within the time, cost, and performance specifications or limitations of that project.

The most important element in project management is the managerial ability of the person in charge of the project—the project manager. This person could be a teacher, a principal, a curriculum specialist or an assistant superintendent, depending on the size and scope of district operations. To complete a project successfully, the project manager must develop the competence to perform his duties effectively. His duties include:

(1) planning and scheduling tasks;
(2) estimating and proposing the budget;
(3) allocating resources;
(4) motivating the staff involved;
(5) integrating tasks; and
(6) controlling performance.

The project manager should be given the authority needed to accomplish his tasks. He will establish a group of teachers to initiate the project, motivate participating teachers to administer performance indicators, and provide the impetus for the involvement of the principals.

A good sense of timing is mandatory. For example, if a project manager wants to discuss some aspects of the project with principals before school opens, he should be sure that supportive communication from higher district officials has preceded his contacts. A project manager with a poor sense of timing could jeopardize a project by generating unnecessary animosity due to participants' feelings of uncertainty about the situation.

He must be a problem-solver. The project manager will be the person contacted by *all* project participants, from teacher to superintendent, when problems arise.

Additionally, the project manager should be knowledgeable about the curriculum area involved and be familiar with the school district itself. A project manager who is new to the district would be operating under a severe handicap.

SUPPORTIVE REQUIREMENTS FOR THE PROJECT MANAGER

For the project manager to function effectively, he needs a slightly different kind of response from the business manager's office than is

usually given to regular ongoing programs. To guarantee this support, the superintendent may have to give special instructions to the business manager. Often the project manager, in response to a newly emergent problem, may need almost immediate approval of expenditures, e.g., within two or three days. If approval takes three months, the project might be severely damaged.

The project manager also will have to contact various other people in addition to the business manager to obtain the facilities and/or materials needed for the project. For instance, the project manager may need to deal with the district printer, if there is one. He may need to find a storage area for performance indicators. He may need a "permanent" office where other people can always contact him or a meeting room where he can hold briefing sessions for principals and teachers or exhibit working charts for anyone who is interested in the project. Sometimes, the project manager may work with people during off hours—in the evenings, after school, or on Saturdays. He must have access to a school building at these times. (This will probably require custodial assistance.)

Another key group of people with whom the project manager will frequently be in contact are the building principals. Therefore, he needs an open, but probably informal, line of communication to them. The emphasis on informal communication is one very good reason for appointing a project manager who knows the district and its employees.

All of the above kinds of support are essential for the success of this program.

THE MAIN TASKS OF COMPREHENSIVE PLANNING

It is very important for the project manager to know, from the beginning, what main tasks are involved in the implementation of a comprehensive planning effort and what he is expected to do. In all, there are five main tasks:

Task A—Preparing for the installation of comprehensive planning

The subtasks associated with Task A that concern the project manager include:

(1) receiving orientation and training;
(2) establishing a planning group;

(3) preparing tentative task schedules;
(4) estimating the budget; and
(5) making arrangements for producing, packaging, storing, and delivering performance indicators.

Task B—Producing performance indicators

Task B subtasks include:

(1) developing performance indicators; and
(2) having sufficient copies of the performance indicators reproduced and ready to be distributed.

Task C—Administering performance indicators

Task C subtasks include:

(1) briefing the implementation group on basic concepts related to comprehensive planning and on how to administer performance indicators;
(2) administering the pre- and post-performance indicators; and
(3) having the data processed.

Task D—Recommending curriculum improvements

Task D subtasks include:

(1) reviewing the results; and
(2) submitting recommendations for program change based on that review to the appropriate school administrator.

Task E—Revising performance indicators for future use

Task E subtasks include:

(1) revising the performance indicators; and
(2) using the revised performance indicators.

Figure 1, on page 220, lists the five main tasks and the personnel involved in each task, while Figure 2, on page 222, outlines a possible time sequence for the five main tasks.

Figure 1

MAIN TASKS AND RESPONSIBLE PERSONNEL IN IMPLEMENTING A COMPREHENSIVE PLANNING EFFORT

PERSONNEL / TASK	PROJECT MANAGER	PLANNING GROUP*	IMPLEMENTATION GROUP*	REVISION AND/OR NEW PLANNING GROUP(S)*
(A) Preparing for the installation of comprehensive planning	✓			
(B) Producing performance indicators	✓	✓		
(C) Administering performance indicators	✓		✓	
(D) Recommending curriculum improvements	✓		✓	
(E) Revising performance indicators for future use	✓	✓	✓	✓

*See page 221 for more detail on these groups.

The *project manager* is the key person in the installation of a comprehensive planning process. He has to be involved in the performance of every main task.

The *planning group* is a group of teachers, curriculum specialists, principals, and perhaps central office administrators who actually develop the performance indicators. The group members will become the most knowledgeable individuals in the school district with respect to comprehensive planning. They can serve as reference people and assist in coordinating planning efforts during the first year of operation.

The *implementation group* consists of all participating teachers and principals involved in actually administering performance indicators during the implementation phase of the project. This group also reviews indicator results and submits recommendations for curriculum change to the responsible personnel. Hopefully, members of the planning group will be sufficiently interested and committed to take part in administering the performance indicators.

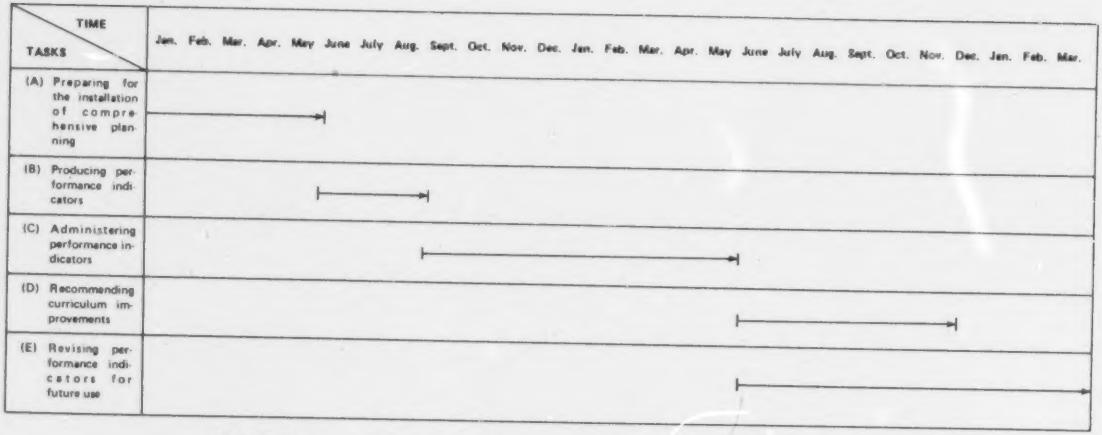
The members of the *revision group* are people with more or less the same qualifications as the members of the planning group. Taking student results and teachers' comments and suggestions into consideration, they revise the performance indicators. It is probable that the original planning group will perform this task.

New planning group(s) are set up as the planning effort is extended to include other curriculum area(s). Each new curriculum planning group will function in the same way the first planning group did. Advice and suggestions from the first planning group will be helpful to the new group(s).

BEST COPY AVAILABLE

Figure 2

A POSSIBLE TIME SCHEDULE FOR THE MAIN TASKS IN IMPLEMENTING A COMPREHENSIVE PLANNING EFFORT


TIME
TASKS
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
(A) Preparing for the installation of comprehensive planning
(B) Producing performance indicators
(C) Administering performance indicators
(D) Recommending curriculum improvements
(E) Revising performance indicators for future use

This diagram illustrates a possible time schedule for the main tasks of the comprehensive planning process. The calendar months are listed across the top, the tasks are listed on the left, and the bars indicate the start and completion times for each task. Note that the tasks in this diagram are the same as those in Figure 1.

Task A—Preparing for the installation of comprehensive planning—is expected to be completed by the end of May.

Task B—Producing performance indicators—is expected to be completed by the end of August.

Task C—Administering performance indicators—is expected to take place between September and the end of May, the period of a school year.

Task D—Recommending curriculum improvements—is illustrated as occurring between June and the end of November.

Task E—Revising performance indicators for future use—is anticipated to take place between June and May of the following school year.

The balance of this section is devoted to more detailed descriptions of the main tasks involved in a comprehensive planning effort. These descriptions are intended to assist you, as project manager, in carrying out your responsibilities. Checklists provided at the end of each description allow you to review each task as it is performed. These checklists are not complete but are to remind you to review the performance of each task. You may want to add a few items of your own to the checklists.

TASK A—PREPARING FOR THE INSTALLATION OF COMPREHENSIVE PLANNING

Initially, the project manager is selected by the superintendent of the district. He generally reports to a central office administrator. In a large district, the project manager may report to the Deputy Superintendent for Planning and Development; in a middle-sized district, he may report to the Assistant Superintendent for Curriculum; in a smaller district, he may report to the superintendent himself.

Basically, if the project manager is to be able to perform his duties effectively, *the school board and the central office administrators (superintendent and assistant superintendents) must make certain commitments to comprehensive planning and to change.* Three general types of commitment are required:

- *Attitudinal commitment.*
  School board members and school administrators must be willing to implement a comprehensive planning effort on a three-year basis. They must be willing to create a highly participatory decision-making atmosphere involving those who have information to contribute as well as those who will be responsible for implementing the decisions that are finally made. Also, they must be open enough to consider feasible alternatives to existing programs when those alternatives are based on the recommendations of teachers, principals, and other administrators.

- *Budgetary commitment.*
  They must be willing to commit an adequate budget for the planning effort, to cover the reimbursement of personnel, materials, and any other expenses involved.

- *Organizational modifications.*
  The comprehensive planning effort creates new functions for district personnel and calls for different kinds of interpersonal relationships within the district; for instance, an elementary classroom teacher may have the opportunity to meet with secondary as well as other elementary teachers in the examination of a given program. District commitment is needed to facilitate these organizational changes.

Task A includes five major subtasks. Each subtask is designated by the appropriate subtask number, while the activities involved in each subtask are designated by consecutive digits following the decimal point (e.g., 1.1, 1.2).

1. The project manager familiarizes himself with this approach.

1.1 *The project manager should be completely familiar with this section, as well as with Section One and Section Two of this book.* These materials will familiarize him with comprehensive planning and his responsibilities for this planning effort. He will also learn various concepts and skills associated with project management that will help him to perform his duties effectively.

1.2 Since comprehensive planning is a districtwide effort, the project manager should collect any district information that will facilitate installing this planning effort. He should be guided by his own judgment in collecting appropriate information, such as:

a. the names of key individuals in the district, their office phone numbers, and how to contact them during off hours;
b. school names, addresses, and phone numbers; principals' office phone numbers, and how to contact them during off hours;
c. up-to-date student enrollment information by grade for each school;
d. up-to-date information about the number of teachers in each school by grade;
e. information regarding specialization in each school, e.g., grade-levels (primary, junior high or high school);
f. the subjects and special programs taught in each school;
g. the nature of data flows within the district, i.e., who prepares data for reports and who receives the reports; and

(h) district publications, memoranda, and statements about policy, job descriptions, curricula and objectives, etc.

2. *The project manager establishes a planning group.*

2.1 Comprehensive planning requires and emphasizes *a group effort.* A planning group should be formed to initiate the planning effort, i.e., to develop planning objectives and performance indicators. Each planning group is oriented to a single curriculum area and should involve no more than 15 members. Most of the members will be teachers from across the district (K-12), who will work with curriculum specialists from the curriculum area involved and school principals. In order to set up such a group, the project manager must contact prospective group members and arrange a meeting schedule.

2.2 The project manager also needs to prepare documents and arrange for any facilities and supplies needed by the planning group. The documents should include information on district goals and/or policies, textbooks, reference books, etc. A meeting place should be arranged, and facilities and supplies should be provided.

3. *The project manager prepares tentative task schedules.*

Figures 3 and 4, which follow, illustrate possible schedules for the two subtasks of Task B, producing performance indicators. Figure 3 suggests a four-day training session for the planning group to work with Section One of this book. Section One need not be completed in continuous sessions. Figure 4 proposes a 10-day session for the planning group to work with Section Two of this book.

Figure 5, on page 228, outlines a suggested schedule for Tasks C and D, administering performance indicators and recommending curriculum improvements.

Since Task E, revising performance indicators for future use, is similar to Tasks B, C, and D combined, a tentative schedule for Task E can be based upon Figures 3, 4, and 5.

All schedules, of course, will vary from district to district depending upon local needs and capabilities.

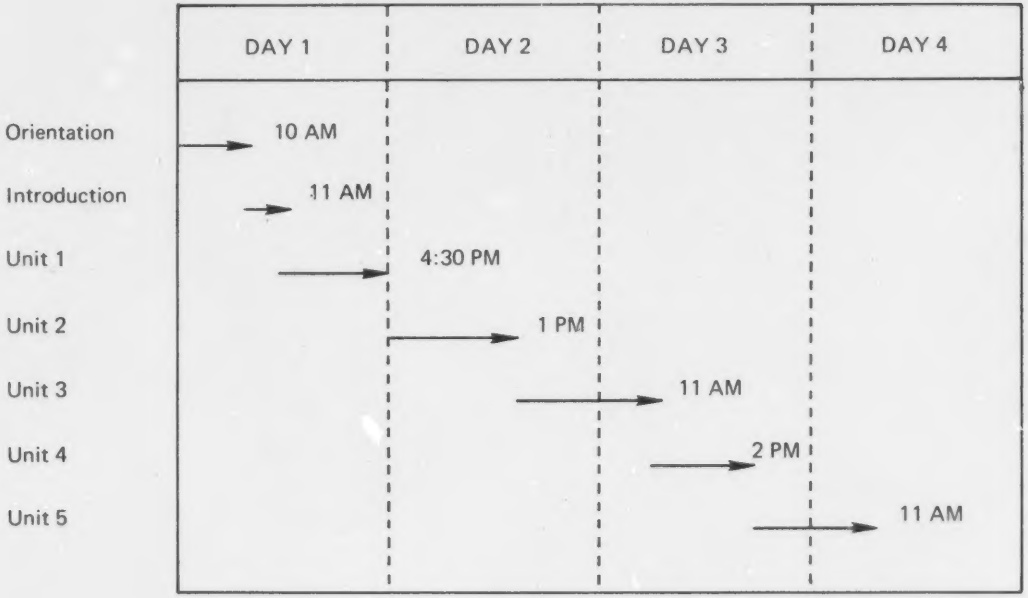
4. *The project manager estimates the budget.*

The project manager's budget estimate should include *personnel costs, reproduction costs, data processing costs, clerical costs, materials and supplies,* and any *other expenses* related to the project. Below is a

Figure 3

*SUGGESTED SCHEDULE—BASIC SKILLS AND CONCEPTS**

Note: This schedule parallels the reading of Section One of this book.



*Each day runs from 9:00 AM until 4:30 PM, with a half hour break for lunch.

Figure 4

*SUGGESTED SCHEDULE BEGINNING IMPLEMENTATION**

Note: This schedule parallels the reading of Section Two of this book.

DAY 1

1. List tasks to be accomplished during the two-week period.
2. Assign specific responsibilities to group members.
3. Distribute supplies and resource materials to assist the development effort.
4. Clarify planning objectives.

DAYS 2 and 3

1. Quality control team leader briefs group members on item-feasibility considerations for performance indicators.
2. Develop performance indicator diagrams.

DAYS 4 and 5

1. Preliminary item-feasibility audit of performance indicators (quality control).
2. The project manager starts to prepare the Teachers' Manual.

DAYS 6 and 7

1. Second item-feasibility audit of performance indicators (quality control).
2. Performance indicators typed and proofread.

DAYS 8 and 9

1. Illustrations are developed or selected.
2. Final audit of performance indicators (quality control).

DAY 10

1. Group reads Unit 2 of Section Two, Beginning Implementation, for information on implementation.

*This diagram provides an example of a feasible schedule for the development of performance indicators. This schedule may not be appropriate for your particular development efforts, but it does provide a frame of reference to use in designing your own schedule.

For a detailed discussion of this proposed ten-day schedule, see Section Two, Unit 1.

Figure 5

SUGGESTED SCHEDULE

(TASKS C AND D:
ADMINISTERING PERFORMANCE INDICATORS
*AND RECOMMENDING CURRICULUM IMPROVEMENTS)**

Task/Subtask	*Date Performed*
C. Administering performance indicators:	C. From September to the end of May:
1. Briefing implementation group	1. Beginning of school year (September)
2. Administering pre-indicator and data processing	2. During the first two months of the school year (September and October)
3. Administering post-indicator and data processing	3. Approximately two months before the school year ends (March and April)
4. Teachers and principals review their class and building data	4. One month before school year ends (May)
D. Recommending curriculum improvements.	D. From the end of the school year to November of the following school year.

*A much more detailed schedule for these tasks can be found in Section Two, Unit 2.

budget format for the project manager to use in recording his estimates for each cost item on each task. When you estimate the costs for each task, review the task and subtask descriptions. Otherwise, you may fail to anticipate some essential cost items.

Only costs which reflect *new* costs to the district should be listed. For instance, if secretarial services and supplies are generally available for correspondence, those c ts should not be included in this budget; however, where additional supplies or materials are required, as in the reproduction of indicators, those costs should be included. Estimated cost figures should be rounded upward to cover any unforeseen expenses.

4.1 *School Personnel Costs.* Payment will depend on the size of the operation and the duration of involvement indicated in the time schedules previously prepared. An estimate of hourly or daily pay for the school staff members involved is essential.

The following equation includes all of the necessary information:

Estimated Number of Staff	X	Estimated Hourly Rate	X	Estimated Number of Hours	=	Estimated Personnel Costs

Personnel costs should be calculated for each task. It is reasonable to expect that some school districts will have no personnel costs for some tasks.

4.2 *Materials and Supplies.* This category covers any books, typing supplies, etc., that may be required. It should *not* include costs for reproducing the indicators since those costs are handled separately. For most districts no costs will be incurred since, in terms of normal district usage, the materials required will be negligible.

4.3 *Clerical Costs.* This category relates to any costs related to activities such as typing the final version of performance indicators or scoring performance indicators. The activities involved with each task should be reviewed in terms of potential clerical costs. The equation presented in 4.1 is also appropriate for use in estimating clerical costs.

4.4 *Reproduction Costs.* Two pieces of information are needed to estimate the cost of reproducing the performance indicators: (1) a rough estimate should be made of the total number of pages needed for district performance indicators; and (2) a rough comparison should be made of the costs involved in various methods of reproduction.

A BUDGET FORMAT

BUDGET FOR A COMPREHENSIVE PLANNING EFFORT

Prepared by .....

Date .....

Cost Items	Estimated Cost
Task A—Preparing for the installation of comprehensive planning	
Personnel costs	
Materials and supplies	
Clerical costs	
Other expenses	
Subtotal	
Task B—Producing performance indicators	
Personnel costs	
Materials and supplies	
Clerical costs	
Reproduction costs	
Other expenses	
Subtotal	
Task C—Administering performance indicators	
Personnel costs	
Materials and supplies	
Clerical costs	
Data processing	
Other expenses	
Subtotal	
Task D—Recommending curriculum improvements	
Personnel costs	
Materials and supplies	
Clerical costs	
Other expenses	
Subtotal	
Task E—Revising performance indicators for future use	
Personnel costs	
Materials and supplies	
Clerical costs	
Reproduction costs	
Other expenses	
Subtotal	
TOTAL	

On the basis of this information, taking district time and cost constraints into consideration, the project manager can decide which method of reproduction will best meet project requirements.

4.5 *Data Processing Costs.* The indicators are administered twice during the school year: the pre-indicator in September and the post-indicator in March. After each administration, the data are collected and processed. Information is then incorporated into classroom, building, and district reports and distributed to the appropriate responsible individuals. A number of different techniques for processing data exist. Critical factors such as time (allowing approximately four weeks for computer data processing), space to accommodate the staff (if hand-processing is considered), cost, confidentiality of data, and scope of operations (the number of participants, number of performance indicators, etc.) are all involved in determining which data-processing technique to use.

4.6 *Other Expenses.* This category is included to cover any unforeseen costs which a district might have.

5. *Packaging, storing, and delivering performance indicators.*

5.1 *Packaging performance indicators.* In RBS field experience, the following ways of packaging the various materials have been found to improve both efficiency and ease of operation.

The printer should collate, staple, and package the materials. The different indicators may need to be packaged separately.

5.1.1 *Teachers' packets.* These packets should include all the materials needed to administer and score the indicator:

a. The performance indicator for the specific grade level and curriculum area. Since the average number of students in each class can be determined for your school district, packages containing that number of indicators (e.g., 30 in some school districts) can be prepared for each class.
b. Teachers' Manual.
c. Teachers' Guide (optional; instructions for the teachers on how to administer the indicators).
d. Item Analysis (refer to Section Two, Unit 1, Supplement B).
e. Answer Key (refer to Section Two, Unit 1, Supplement B).
f. Checklist (optional).

5.1.2 *Principals' packets.* These are "show and tell" packets. They

allow the principal to become familiar with the different performance indicators and should include:

a. Indicators for all grade levels and curriculum areas in his school which are included in this project (pre-school, elementary, junior high, or high school).
b. Teachers' Manuals for all grade levels and curriculum areas in his school.

5.1.3 *Courtesy packets.* These packets should include:

a. Indicators (for all grade levels and all curriculum areas involved).
b. Teachers' Manuals.

Courtesy packets may be sent to central office administrators and to key people outside the district for informational purposes only. The courtesy packets do not enable anyone to administer the indicators because Teachers' Guides, Item Analysis, and Answer Keys are not supplied. These packets provide answers to such questions as, "What is a performance indicator?," "What does it look like?," and "How is it used?"

5.2 *Storing performance indicators.* The indicators should be stored in a place that is clean, dry, well-lighted, and accessible. Two storage charts should be prepared, one to be retained at the storage location and one for the project manager. All requests for indicators should be sent to the project manager, who should refer to the master storage chart and arrange to have them delivered. If time permits, the courtesy packets should be placed in individual folders and stored together. The principals' packets should be stored together in folders and then either carried to the principals' orientation meeting or mailed directly to the schools, whichever seems preferable.

5.3 *Delivery of the materials.* Every district has a delivery system for distributing books and supplies to individual schools. The performance indicators can be delivered through the district's regular delivery system. *The materials must be delivered to each school in time for pre-indicator administration.*

PROJECT MANAGER'S CHECKLIST

Task A: Preparing for the Installation of Comprehensive Planning

1. What are the estimated costs for professional staff participation? (This would be the total of all personnel costs for each task.)

2. How many times were you in communication with central office administrators regarding the purpose of the project and its progress? (To the extent that the number of contacts is low, this may be viewed as a potential problem.)

3. Do you have a list of the names and telephone numbers of everyone who will be participating in the planning group?

4. Where is the planning group going to meet? When?

5. Have an adequate number of copies of this book been provided for your planning group?

6. Do you have necessary supplies, stationery, and reference books ready for the use of the planning group?

7. Have you prepared tentative time schedules for your project?

8. What decisions have been made regarding the reproduction technique and data-processing system to be used?

9. Where are your performance indicators going to be stored until they are distributed?

TASK B—PRODUCING PERFORMANCE INDICATORS

This task is basically accomplished in two steps: first, the development of performance indicators, and second, the reproduction of performance indicators. Most of the preparation for Task B was included in Task A.

1. *Developing performance indicators.*
   The project manager is responsible for assuring that each activity of each subtask is performed properly. He also functions as a decision-maker in resolving any difficulties and as a source of information for planning group members and central office administrators.

   1.1 Completion of Section One of this book.
   The primary responsibility of the project manager is to keep the planning group on schedule. The time schedule developed by the project manager (based on Figure 3 on page 226) presents information on this subtask. It is recommended that the project manager be a member of the planning group and take part in the group effort. Section One is completely self-instructional and, therefore, no additional instructions are included here.

   1.2 Completion of Section Two of this book.
   The project manager's primary responsibilities are to be sure that all of the preparations for this subtask *are completed* on time and that the progress continues smoothly. The time schedule developed by the project manager (based on Figure 4 on page 227) should be used as a reference. As was true of Section One, Section Two is completely self-instructional.

2. *Having sufficient copies of the performance indicators reproduced.*
   When the total number of pages needed has been estimated, the project manager is responsible for: (a) having the performance indicators reproduced, (b) having them assembled for district use, and (c) having the performance indicators packaged and stored.

Note: The project manager should also provide feedback information from the planning group to central office administrators to make sure that their involvement continues.

PROJECT MANAGER'S CHECKLIST

Task B: Producing Performance Indicators

1. What limitations are imposed on indicator development by the method of reproduction selected?

2. Were the performance indicators proofread before being reproduced?

3. Where are the data relating each indicator item to the appropriate planning objective?

4. Have teachers' packets, principals' packets, and courtesy packets been assembled?

5. Who is to be contacted about delivering the performance indicators to participating teachers?

6. If a member of the central office administration were to ask what comprehensive planning is all about, what would you tell him? (You may wish to review the first few pages of this section.)

TASK C—ADMINISTERING PERFORMANCE INDICATORS

This task includes the following subtasks:

1. *The project manager briefs the implementation group.*

The implementation group will involve many *formerly involved teachers and principals.* The teachers in this group will administer the performance indicators and recommend curriculum improvements. The principals will review the summary data and recommend curriculum improvements for their buildings. It is very important for the implementation group to be briefed at the *beginning* of the school year. Group members will also need scheduled in-service working sessions during the school year.

1.1 The importance of briefings for participants.

Whenever change is introduced into a school district or any other system, the implementation of that change will be seriously impaired if the participants feel uneasy or uncertain about their roles, their relationships with each other, and/or the impact and consequences of that change for themselves, for the children, and for the district.

There are two basic ideas that the project manager should communicate to central office administrators, teachers' organization representatives, principals, and teachers:

(1) Comprehensive planning is designed to bring about change by helping people to assess current programs and asking them to recommend change when and if change is *needed,* not change for its own sake.

(2) Comprehensive planning needs the support of all of these people. One way to explain their roles is to share with them information about this planning effort and about what they will be required to do in implementing the plans which have been formulated. If all of the groups mentioned above are not informed and involved in the beginning, you can be reasonably certain that their commitment will not have the depth necessary for successful implementation. Therefore, the project manager should encourage not only an initial commitment from all of these groups, but also their periodic recommitment. Briefings and reports will give partici-

pants an opportunity to consult with the project manager.

1.2 What will the participating groups want to know?
Periodically, discussion sessions or briefings will be appropriate or will be requested. The following list will give you an idea of the kinds of questions to expect and assist you in preparing for these sessions:

1. What is "planning" in general?
2. What is comprehensive planning?
3. How would comprehensive planning help our district?
4. Where am I in this project?
5. What can I do to support this project?
6. How and when were these planning objectives and performance indicators developed?
7. How are performance indicators used?
8. What is the difference between performance indicators and standardized tests?
9. When will the performance indicators be given?
10. Who gets the results?
11. What is the next step in this project?
12. What does this have to do with educating kids?

Some specific questions that *central office administrators* and *school board members* might be interested in having answered are:

1. How much money is needed for this project? Where will the money come from?
2. If the project requires state or federal funds, how would we present the project to the funding agency?
3. What is the role of outside consultants, if any, in this project?
4. Where does community involvement come in? When?
5. Where does pupil involvement come in? When?
6. What is the relationship of this project to other programs in our district?
7. What are the benefits to the pupils?

8. What are the relationships between and implications for the existing and desired roles of participants?
9. What will the relationship between the district and the State Department of Education be?
10. What about accountability?

Some specific questions that *principals* may want answered are:

1. How should I interpret the building results from performance indicators? What should I do with the results?
2. Who should receive my recommendations?
3. What is the advantage of having the teachers receiving their individual class results?
4. What about accountability?

Some specific questions that *teachers* might want answered are:

1. How should I interpret my class results?
2. Why can't I look at each pupil's score and do something to help the slowest pupils?
3. What should we do after we receive our data?
4. Why don't we give the post-indicator later in the school year, so that pupils can be tested on all of the material covered during the year?
5. How can I be sure that my recommendations for change will have real influence in district decision-making?
6. How soon will our recommendations affect the curriculum?

The project manager should be prepared to answer these questions. During briefing sessions, he may even want to distribute his answers in writing to the appropriate groups.

1.3 Importance of in-service education.

School personnel should not consider comprehensive planning as an end. Rather, it should be thought of as a means used in planning for change. The ultimate goal of compre-

hensive planning is to equip school personnel with the knowledge and skills related to planning so that they will be able to initiate change, plan for change, and cope with contingent changes.

On the basis of this assumption, comprehensive planning requires not only briefings for the participants but also continuous in-service education. Briefings initiate and develop staff commitment, while in-service education contributes to staff development and to the attainment of planning skills. In-service education should be an *open, direct, structured* activity aimed at developing staff potential to bring about change. Through in-service education, school personnel will be trained to use performance indicator data for planning purposes. They will also come to realize that meaningful change is possible only when *all* district personnel are willing to share information in an open way.

2. *Teachers administer pre- and post-performance indicators.*
Pre- and post-performance indicators should be administered at the times specified on the previously developed schedules. The project manager should see that this is done.

3. *Having the data from performance indicators processed.*
The project manager is responsible for having the results of the performance indicators processed. You must be ready to answer questions from other district staff members. As project manager, you should familiarize yourself with all of the supplementary material even though these documents were written for the use of the building planning coordinators, principals, and teachers.

PROJECT MANAGER'S CHECKLIST

Task C: Administering Performance Indicators

1. Has every participating teacher been informed of his or her role in implementing comprehensive planning?

2. Were performance indicators administered at the scheduled times (pre-indicator time and post-indicator time)?

3. Did you have regular and frequent contact with building planning coordinators?

4. Have you provided the following information for your data processing system?

   a. A list of school names.

   b. A list of indicator names.

   c. A list of planning objectives for *each* indicator.

   d. A list of participating teachers, indicating their grades, sections, and curriculum area(s).

   e. An item analysis list for each indicator, e.g., in the third-grade mathematics indicator, items, 1, 3, 4, and 9 are related to planning objective C: practical applications.

TASK D—RECOMMENDING CURRICULUM IMPROVEMENTS

Task D includes two subtasks:

1. *Reviewing results.*
   After the data have been processed, reports are received by classroom teachers (each teacher receives a report on his own classroom) and principals (each principal receives a summary report on his own building). The project manager may wish to suggest that teachers and principals review Unit 5 of Section One for assistance in interpreting and analyzing this data.

2. *Submitting recommendations.*
   After reviewing their results, the teachers and principals should submit recommendations for curriculum improvement to appropriate district personnel. For instance, the teachers will probably submit their recommendations to their principals through the building planning coordinators* and, in turn, the principals will submit their recommendations to the superintendent through the project manager.

*It is advisable, whenever possible, to have school personnel who participated as members of the planning group serve as building planning coordinators since they have gone through the development process and are acquainted with the basic concepts and skills involved in a comprehensive planning effort.

PROJECT MANAGER'S CHECKLIST

Task D: Recommending Curriculum Improvements

1. Have you collected recommendations from all participating teachers, principals, and building planning coordinators?

2. Have you had a chance to talk with all participants about their recommendations?

3. Have you compiled district-level recommendations for curriculum improvements (in writing) for the superintendent or assistant superintendent?

TASK E–REVISING PERFORMANCE INDICATORS FOR FUTURE USE

Task E includes two subtasks.

1. *Revising the performance indicators.*
   After the performance indicators have been used, teachers may find that there are areas where improvement is needed; therefore, revision becomes a natural task following initial use of the indicators. The criteria for revision will include student results, analyses of processed data, and participating teachers' comments. To handle the task of revision, a revision group will have to be organized. This group should consult Section Two, Unit 1, for information on indicator development.

   (If it is decided now to extend comprehensive planning to some previously uninvolved curriculum area(s), Tasks A to E will be repeated for those subject areas. A new planning group will have to be formed to develop performance indicators for each additional curriculum area.)

2. *Using the revised performance indicators.*
   The revised performance indicators (together with any new ones) will then be reproduced for district use during the following school year.

At this point, the project manager's responsibilities may be extended to include curriculum areas not now involved. A new budget for the extended comprehensive planning project will have to be prepared and submitted to the superintendent for approval.

PROJECT MANAGER'S CHECKLIST

Task E: Revising Performance Indicators for Future Use

Revision:

1. Do you have documents which summarize participating teachers' comments and recommendations regarding the revision of performance indicators?

2. Have you contacted people to serve as members of a revision group?

3. Have you prepared a schedule for the revision group?

4. Where is the revision group going to meet? When?

5. Are needed materials and supplies ready for the work of the revision group?

Development of New Performance Indicators:
See the checklist for Task A.

Using Revised Performance Indicators:
See the checklist for Task C.

Budget:

1. Have you prepared a new budget for your district's comprehensive planning project for next year?

2. When are you going to submit this budget to the superintendent?

SUMMARY OF SECTION THREE

This Project Manager's Guide is designed to give not only an overall picture of the comprehensive planning process and the project manager's role in that process but also a detailed description of the five main tasks involved.

Section Three is intended to serve as a guide and reference for the project manager while the comprehensive planning process is being implemented in his or her district. Figures 1 and 2 (pages 220 and 222) are designed to serve as guidelines for the entire procedure. This section also orients the reader to project management techniques which can be applied in installing this new planning process in the school district.

APPENDIX

CRITERIA FOR THE SUCCESSFUL IMPLEMENTATION OF A PLANNING PROCESS AT THE CURRICULUM LEVEL

Global Criteria

1. Willingness to establish a highly participatory decision-making activity, i.e., involving those who have information to contribute and those who will be responsible for implementing decisions that are made.
2. Willingness to use indicators of performance for a minimum of three years, assuming, of course, that the staff is willing.
3. Willingness to consider feasible alternatives to existing programs based on the recommendations of teachers, principals, and other administrators which result from the planning effort.
4. Willingness to commit an adequate budget for the effort.
5. Willingness to have all staff involved in the project respond to RBS evaluation and monitoring forms, so that we may continue to improve this planning system.

Start-Up and First Summer Considerations

1. Agreement to assign an individual to be responsible for the management of the planning process for the district. If the district elects to involve only one curriculum area, this individual may be a curriculum coordinator.
2. Agreement to identify and pay interested teachers and principals (8 to 15 per curriculum area) to complete a three-day individualized introduction to basic skills and techniques. (It is possible to divide the three-day introduction into several sessions.)
3. Agreement to allow those teachers and principals who complete the introductory session to develop performance indicators during a two-week session early in the summer.
4. Agreement to pay for the reproduction costs of printing performance indicators and Teachers' Manuals for use in the school district during the coming school year.

First School Year Considerations

1. Agreement to involve *all teachers who elect to be involved* during the coming school year.

2. Agreement to allow classroom teachers to maintain confidentiality of information. Principals will receive summary information at the building level, while the superintendent receives summary information at the district level.
3. Agreement to be open to recommendations for change made by teachers and principals.
4. Agreement to revise and reproduce performance indicators and Teachers' Manuals for the coming year.

Second Summer and School Year

1. Agreement to repeat the planning experience of the previous year and to allow teachers and principals to participate on a strictly voluntary basis.
2. Agreement to take action on any feasible recommendations for program improvement derived from the recommendations made by participating teachers and principals.

Annual Cost Related Activities in Chronological Order

Activity	*Duration*	*Cost Involved*
1. Completing Section One.	Three to four days (at the end of the school year—this activity may be divided into several sessions).	A. District personnel and supplies as needed to complete this task (8 to 15 people per curriculum area). B. Sufficient copies of this handbook.
2. Developing indicators of performance.	Two weeks (during a summer workshop).	See Items A and B above.
3. Reproducing of indicators of performance.	This must be completed by the end of the summer. (It generally takes three weeks.)	Reproduction costs for printing enough copies of the indicators for pre- and post-usage by each participating student.

4. Administering, scoring and processing indicators of performance.	Variable.	A. District personnel as needed to complete this task. B. Approximately $.50 per student for data processing.*

*For information on a computer processing system which was developed for use in processing performance indicator results, contact: Office of Public Information, Research for Better Schools, Inc., Suite 1700, 1700 Market Street, Philadelphia, Pennsylvania 19103.